Assessment Report
CHEMISTRY 2011-2012
Rosemont College --Undergraduate

I. General information:

Date of Report: May 11, 2012
Semesters or Academic Years Covered: 2011-2012
Division: Natural Science and Education
Department: Chemistry
Report Prepared by: Dr's Xiuni Wu and John Ullrich
Chair: John Ullrich

II. Departmental Profile:

Number of Majors: 3
Number of Faculty: *2* *full time*

Courses Offered in the Assessment Period:

CHE-0142 General Chemistry I and Laboratory
CHE-0145 General Chemistry I and Laboratory
CHE-0230 Organic Chemistry I and Laboratory
CHE-0236 Organic Chemistry II and Laboratory
CHE-0215 Inorganic Chemistry and Laboratory
CHE-0300 Analytical Chemistry and Laboratory
CHE-0400 Environmental Science
CHE-0425 Senior Seminar

III. Assessment results:

A. Learning Outcomes for Majors

This year we collected data dealing with Goal I, Objective 1 (demonstrate knowledge in different fields of chemistry)**,** Goal II**,** Objective 1 (analyze and interpret results and produce lab reports using scientific format) and Goal III, Objective 1 (demonstrate effective oral communication skills in the field of chemistry). Please refer to plan for details.

B. Assessment of Majors:

Goal I:

Objective 1 (Demonstrate knowledge in different fields of chemistry)

One student in the chemistry major took the ETS test, however due to the equating process of ETS*, a complete test score report is not available at this time. But a preliminary report from ETS shows that our student achieved a score range of 176-179, which stands above 95% nationwide with a national average of 148. Therefore it satisfies the requirement of goal I, objective 1.

* The ETS test is divided into 4 subgroups, however due to the process of equating at ETS, the scores of subgroups are not available at this time.

Goal II:

Objective 1 (to analyze & interpret results and produce lab reports using scientific format)

Students are introduced to scientific writing in CHE-0143, 0146, 0231 and 0236; General Chemistry I, II, Organic Chemistry I, II Laboratory course.

The students are expected to become more proficient in scientific writing by the 400 level course CHE-0401 Bio Molecular Structure and Function Laboratory.

Evaluation is accomplished using their first lab reports in CHE-0143 as a baseline and comparing their scores to the intermediary writing associated with CHE-0236.
Student's average laboratory scores for CHE-0236 are then later compared to their final lab reports in CHE-0401.

The class average score for their first lab report in CHE-0143 was 84% whereas the class average score for their intermediary laboratory reports in CHE-0236 was 89.5%.
The students on average improve by 5.5 % .

In addition, students in CHE-0236 were evaluated using the Scientific Method Rubric on Problem Solving (rubric below), the class scored an average of 14.5 out of a possible 16 pts.

Scoring Grid: 16-15, exemplary; 14-13 proficient; 12-11 performing and 10 and below emerging

	Exemplary (4)	Proficient (3)	Performing (2)	Emerging (1)	Score
Define problem	**Student shows complete understanding of the problem including relevant contextual factors and understands fully any relevant quantitative information that will be needed to solve problem**	**Student shows strong understanding of the problem which identifies many contextual factors and sees that some quantitative information that will be relevant to solve problem**	**Student shows partially developed understanding of the problem including a few contextual factors and attempts to identify what quantitative information will be needed to solve the problem**	**Student shows limited understanding of the problem and contextual factors and fails to identify sufficiently what quantitative information will be needed to solve the problem**	
Identify strategies	**Student devises effective and efficient approaches to solving the problem and defines fully the quantitative methodologies that will be brought to bear on the problem. Considers other possible approaches as well.**	**Student devises an approach to solving the problem and proposes an accurate quantitative methodology that will be brought to bear on the problem. Some consideration of alternative approaches is evidenced.**	**Students devise an approach to solving the problem but do not apply sufficient or accurate quantitative methodology to the problem. Little if any consideration of other approaches is evidenced.**	**Student's devises an approach to solving the problem is flawed or inappropriate, and does not adequately apply accurate quantitative methodology to the problem. No consideration of other approaches is evidenced.**	
Generating Solutions	**Student seeks to solve problem in an orderly and logical manner, producing quantitative results that are both accurate and on point with the problem at hand.**	**Student seeks to solve problem in an orderly manner, producing quantitative results that may have bearing on the problem at hand.**	**Student procedures for solving problem are flawed; quantitative results generated are accurate but not germane to the problem at hand.**	**Student approach to problem is insufficient or severely flawed, any quantitative results generated are inaccurate or not germane to the problem at hand.**	
Evaluating Outcomes	**Student can verbally describe the outcome and justify it rationally given the quantitative results discovered; can discern and describe any potential flaws in the outcome given variables in quantitative or other information used in the solution. Is fully capable of ascertaining whether approach was correct.**	**Student can verbally provide a rationale for the outcome given the quantitative results; considers potential flaws in the outcome given variables in quantitative or other information used in the solution. Can surmise that approach was correct.**	**Student accepts result uncritically or cannot explain results fully; does not identify any potential flaws in the outcome given variables in the information or errors in judgment or approach. Is unable to determine or is unsure whether approach was correct.**	**Student does not reflect on the result at all, cannot explain result in the context of the problem; does not consider potential flaws in the outcome given variables in information and errors in student judgment or approach. Does not reflect on approach or attempt to determine whether approach was correct.**	

Goal III:

Objective 1 (demonstrate effective oral communication skills in the field of chemistry).

Oral presentations were assessed in the following courses: CHE-0300 Analytical Chemistry and CHE-0425 Senior Seminar. An oral presentation rubric was used to assess the following areas of the presentation: organization, presentation skills, visual aids, handling of questions after presentation and length of presentation. Each of these areas is scored as follows: excellent (4), good (3), adequate (2) and inadequate (1) and a total score was calculated.

- CHE-0300 Analytical Chemistry
  - 100% (2 out of 2) of students scored 3 or better
  - 0% scored below 3

- CHE-0425 Senior Seminar
  - only one senior was assessed, and the score was 4

On average, 100% of students scored 3 or better.

C. Changes Based on Assessment

According to the raw ETS scores, our student performed well and the score was well above the national mean.

D. Recommendations for Improving the Assessment Process

For academic year 2012-2013 we plan on introducing an ACS (American Chemical Society) Standardized test for CHE-0231 and 0236, Organic Chemistry I and II.