Appendix #4.3

Faculty Report on Evidence of
ASNS Degree Program Learning Outcome (PLO) Achievement

Course & Title: Chemistry 162L - General Chemistry II Laboratory

Semester: Fall 2012

- Select two samples of student learning evidence that demonstrate exit-level achievement of PLOs, one at the exemplary level and another at the minimal level. Choose evidence from embedded assignments, projects, or exams that are normally included as part of the class with an appropriate degree of independence.

- PLO being assessed this semester:
  Upon successful completion of the ASNS Degree Program, students will be able to explain the natural and technological world using reflection and quantitative analysis including preparation of a plan to collect, process, and interpret data; evaluation of the plan, procedures, and findings; and communication of the conclusions.

- Hallmarks that this course PLO supports
  To satisfy the **Physical Science (DP)** area requirement, at least two thirds of a course will
  - Use the terminology of the physical sciences.
  - Involve knowledge and theories relating to processes in the physical sciences.
  - Demonstrate inquiry that is guided by observation/experimentation and reasoning and mathematics.

Briefly describe coursework designed to prepare students to demonstrate this PLO - Introduction to Kinetics: Factors that Affect the Rate of Reaction is an excellent example of an experiment that demonstrates the effects of chemical and physical variations on the natural world. This topic studies difference in reactions by 1) varying concentrations of reactants; 2) varying orientation of molecules; 3) varying temperature; and 4) exploring how catalysts can affect the rates of a chemical reactions. All activities require a series of pre-laboratory exercises that incorporate a review of the technical and scientific background, practical questions that relate to the topic, and a concise summary of procedures that will be carried out. During the experiments, observations are recorded, data are collected, and calculations are carried out. Results are analyzed and summarized in written reports.

This evidence is rated: exemplary - *Briefly describe your assessment evidence as it correlates with the PLO hallmarks and identify qualities in the student work that establish exit-level quality appropriate for the ASNS degree.* - All the hallmarks are clearly covered by this course and support the PLOs for the ASNS degree. This student's work was thorough and indicated that s/he understood the concepts. An understanding of the distinctions between the results using different variables in an experiment was evident and well explained. Practical applications of the concepts in environmental situations were discussed.

This evidence is rated minimal - *Briefly describe your assessment evidence as it correlates with the PLO hallmarks and identify qualities in the student work that establish exit-level quality appropriate for the ASNS degree.* - All the hallmarks are clearly covered by this course and support the PLOs for the ASNS degree. This student's work appears to be done very quickly and without much thought or care. The writing is sloppy, one page is missing, and there are incomplete sentences and misspelled words in the summary report. When asked for applications of the concepts, this student does not use the best examples, although they are not necessarily incorrect.

Briefly describe other coursework through which students demonstrate achievement of the hallmarks for this PLO. - All the experimental activities in General Chemistry II Laboratory are inquiry-based and demonstrate that students must use the terminology, knowledge, and theories of the physical sciences. Throughout the experimental process, students make predications, record observations, process data, and summarize results.