

2003-2004
Quality Enhancement Program Summary
Office of Institutional Research,
Planning and Effectiveness



Department: Chemistry **Award Amount:** \$15,000 **Award Recipient:** Dr. Kim Woodrum

Project Focus:

The Chemistry Department underwent an external review in February 2003. To bring the department in line with our benchmark institutions, the panel concluded that the department should offer a laboratory with the first semester general chemistry course (CHE105).

Assessment Method:

An American Chemical Society standardized test was administered to all CHE105 students as their final exam. To assess the impact on student learning, a comparison was made between those students who took the laboratory and those who did not, and also between our students and the national average.

Results as of Fall 2004, provided by Dr. Kim Woodrum:

Comparisons were made between all General Chemistry I students with students who enrolled and remained enrolled in the Laboratory to Accompany CHE105. The data shows an improvement in every area of the course. However, the most remarkable improvement is in the homework average (resulting in an overall improvement to the total percent) and the percentage of withdraws from the course. Each question of the exams we gave was analyzed to determine if the students who took the laboratory did better on exam questions, which pertained to material covered in the laboratory. Students taking the lab received a correct response **1.41%** more often on questions that pertained to material covered in the laboratory. Students taking the lab received a correct response **0.26%** less often on questions that did not pertain to material covered in the laboratory.

Our General Chemistry Students fared very well when compared with the national average on a standardized American Chemical Society exam. The national mean was 41.73 out of 70 questions. Our students scored 45.49. We gave our students 120 minutes to complete the exam whereas the instructions on the exam were to give them 110 minutes. The extra 10 minutes might account for the higher average however.

The additional laboratory was very well received by students. Students could not state with certainty that the course helped them receive a better grade in CHE105 but they really liked the fact that the course was divided between the two semesters. While the group taking the laboratory outscored the overall group in every category, the two most notable were (1) the homework grade (thus affecting the overall grade) and (2) the withdraw rate. These two factors are probably most likely a result of the small group experience they received by being in the laboratory.

Future Plans:

The Director of General Chemistry I will be petitioning to continue this project on a permanent basis by Fall 2006. During Spring 2006 the department will be offering the second half of this course, with students who took the lab to accompany CHE105 continuing. The students are expected to show an improvement in laboratory writing skills as a result of completing the first semester lab course. The department will be submitting the request to have the A&S 100 courses be converted to the CHE111 and CHE113 courses. Remaining money available from this grant will go into providing more laboratory equipment to expand this idea to all freshman students and should be spent by the end of the spring 2005 semester.