



ALEKS® Case Study

University of the Incarnate Word | San Antonio, TX

DFW Rate Cut in Half and Improved ACS Scores with ALEKS

Because Chemistry I is a gateway course for STEM majors, a two-week summer boot camp preparation course, CHEMStart, course was designed to bring students up to speed and prepare them for the General Chemistry course. Success or failure in chemistry may determine a student's career path, so intervention was needed to help students move forward on their chosen career paths.

Overall, students had a very positive experience using ALEKS in the CHEMStart course. Dr John Stankus says, "Students showed dramatic improvements in their outcomes for General Chemistry as well as their math course results." For this cohort, drop, fail, withdraw (DFW) rates and overall grades improved. Students were no longer hitting a roadblock in their first STEM course.

ALEKS Implementation

CHEMStart with ALEKS is a two-week, four hour a day course that focuses on a set of 106 topics. When students complete those topics, they move to the secondary topic set. The course is voluntary and is not for a grade. A circulating instructor helps students push through roadblocks of misunderstanding so that students can continue to build to a successful completion of the course.



Course Name: CHEMStart: Chemistry Preparatory Boot Camp

Course Type: Remediation Prep; Accelerated/Bridge Program

Course Setup: Summer Preparation for General Chemistry I (CHEM 1301) using ALEKS with Silberberg & Amateis, 7e

Instructor: John Stankus, PhD

Average Enrollment: 10-12 sections; 15-20 students per section

"Students gained confidence with the adaptive questioning in ALEKS."

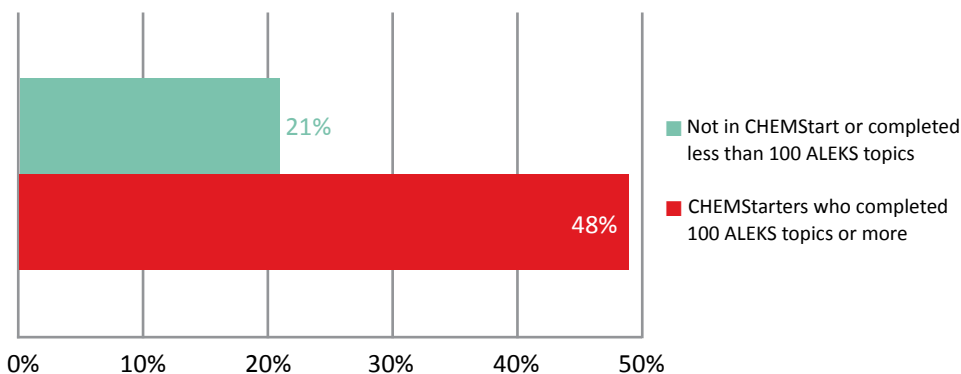
—John Stankus

Results Achieved

As a Hispanic Serving Institution (HSI), one-third of the students are first generation college students and many have inconsistent preparation for chemistry from their high school coursework. The General Chemistry courses at University of the Incarnate Word had a DFW rate of 40% to 50%.

The DFW rate was cut in half from 48% to 21% (Figure 1). Students enrolled in CHEMStart who completed 100 topics or more had a 21% DFW rate, while students who had not completed 100 topics in ALEKS had a 48% DFW rate.

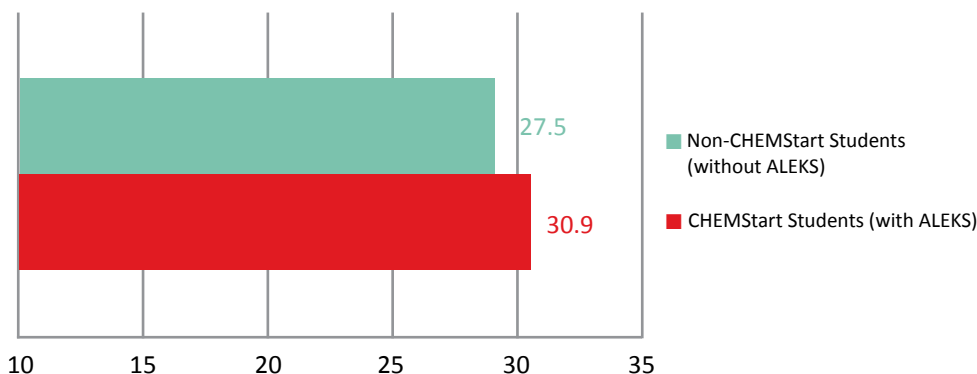
Figure 1: DFW Rates



Further, students enrolled in CHEMStart earned As and Bs at twice the rate of students not enrolled.

Students who used ALEKS in CHEMStart and succeeded in Chemistry I also performed well on the American Chemical Society (ACS) standardized exam. In Fall 2014, CHEMStart students scored 30.9 compared to non-CHEMStart students who scored 27.5 (Figure 2).

Figure 2: ACS Scores



Using ALEKS in the CHEMStart allowed students to become familiar with campus resources, meet other students, and receive personalized attention from faculty and advising staff. Students also gained a sense of accomplishment and were more confident in their next chemistry course.

Future implementation plans include:

- Make CHEMStart with ALEKS a prerequisite for the General Chemistry course
- Run the CHEMStart more often

Student Reactions

Students no longer feared chemistry as they entered the course. They began to see that they could be successful in accomplishing their goals.



John Stankus has significant experience teaching, mentoring, and developing new scientists and engineers. At the University of Incarnate Word, he participates in the First Faculty which is a group of faculty who teach first year classes and work to have better outcomes for new students—especially first generation students. In addition, he has been published in 25 technical papers and holds nine patents

issued on semiconductor device structures, processing, optoelectronics integration, electro-optical modules, high-speed electrical interconnect, and optical interconnect devices.

Institution Profile:

University of the Incarnate Word (UIW) is the largest Catholic university in Texas and the fourth-largest private university in Texas. The enrollment reflects the diversity of South Texas, as more than 60 percent of the students are from racial or ethnic minority groups. UIW offers 80 undergraduate and graduate fields of study. UIW is one of twenty universities in the U.S. with an optometry program, while the pharmacy school is the only one in Texas at a private university.