Session F

Tackling Attrition in a Rural 2-year HSI Adaptive Case Study

Karen Henry and Marlene Chavez-Toivanen
New Mexico State University Grants

NMSU Grants conducted a research study to identify obstacles to freshman student success and persistence using student demographics, course analysis, and student and faculty surveys. The results of the study disproved many of the long-held campus beliefs and may challenge what you think you know about your students and campus.

CISTAR Program at Purdue University: Why teacher's need to engage as active researchers.

Jerry Cronin
Hopi Junior/Senior High School

As students, staff, teachers or administrators at Hopi Jr./Sr. High School; all of us need new challenges and new educational experiences in our lives. Many of our students tune out the material they are supposed to learn because they think: 'when will I ever use this again?' This past summer I was invited to participate in the CISTAR program for teachers at Purdue University in West Lafayette, Indiana. This program accepted only 7 teachers into the Chemical Engineering Department at one of our nation's most competitive Engineering universities. I was 1 of only 2 educators from the western United States.

The intent of the CISTAR program is to provide research experiences and a teaching unit for STEM teachers at the secondary level that teachers will apply in their teaching situation. My project studied how to remove noxious gasses from diesel engines to clean up the air and make the big trucks on the interstates run more efficiently. We simulated a diesel engine in the Chemical Engineering labs at Purdue using gasses in the same ratio as a diesel engine would use them. We tested our own Copper Hydroxide catalyst that was similar in every way to a commercially available Copper hydroxide catalyst that was supposed to make noxious chemicals stick to it and hence not get released into the air.

Another part of our study was to improve efficiency of the diesel motor at under 200 degrees Celsius. This is essential because big rig diesel engines take about 20 minutes to warm up and that is when they are belching out the greatest amount black smoke. After the engine warms up, there is a lot less pollution sent into the environment. This is the holy grail of Chemical Engineering and the person who figures this problem out will become a very wealthy person. If this sounds interesting to you or somebody you know; please contact the Principal Investigator at fabio@purdue.edu. It might just be a life changing experience.

If engineering isn't for you…National Endowment for the Humanities (www.neh.gov) and the Gilder Lehrman Institute lists will be posted in late October. These are more suited for the Humanities and teachers can learn about more interesting topics of study. If anybody would like to be recommended for the St. Johns College Tecolote seminar series next year or just want to admire my poster in Chemical Engineering; please stop by my office.

Session F

Heroes and Heroines of Chemistry

Lawrence Berliner
University of Denver and The Ohio State University

The talk highlights some very famous people who influenced chemistry and the sciences in a profound way that still impacts us today. We cover Alfred Nobel and the Nobel Prizes, Amedeo Avogadro, John Dalton, Dmitri Mendeleev and the periodic table, Marie Curie, Fritz Haber and Linus Pauling. It is aimed for a broad audience with just a minor knowledge of science and emphasizes some unforgettable amazing features on personal life and creativity. The talk was previously presented to the Colorado outstanding high school chemistry students, teachers and parents in celebration of the International Year of the Periodic Table.