

CALIFORNIA STATE UNIVERSITY, STANISLAUS



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Academics with Service builds stronger communities

THE SERVICE LEARNING NEWSLETTER

Science With Service Learning

Faculty: **Dr. Koni Stone and Dr. Shane Phillips**

Community Partner: **Turlock Unified School District**



Dr. Shane Phillips, Associate Professor and Dr. Koni Stone, Professor
Chemistry Department
California State University, Stanislaus

Students have to work in a group and think creatively - what will be fun for kids *and* teach them science? They have to figure out how to write directions for others to follow. My students are sharpening their critical thinking skills, as well as improving their written communication skills. In addition to doing science experiments in the classroom, the elementary students get to meet and interact with college students. All of my students give a brief introduction about their future plans. I hope this helps to inspire the elementary students to go to college.

-- Dr. Koni Stone, Professor, Chemistry

As a scientist and university professor, I have always been disheartened by the burgeoning problem in the United States of scientific ignorance and a pervasive fear of science. While there are no easy solutions, I have tried to help address this problem in our local community through service learning activities in our elementary school classrooms. As a result, the feedback from both the university students and elementary school students and teachers has been extremely positive. The University students get first-hand experience **DOING** science with youngsters, and the schoolchildren get energized about science.

-- Dr. Shane Phillips, Associate Professor, Chemistry

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SCIENCE WITH SERVICE LEARNING

When Chemistry courses are taught with a service learning component, student's perception and understanding of science can be transformed. Courses taught by two CSU Stanislaus faculty, Professor Koni Stone and Associate Professor Shane Phillips, are exemplary models demonstrating how service learning in the classroom can deepen student learning in the sciences. This methodology helps prepare student teachers and health professionals to present science to learners with diverse backgrounds. Science activities in each professor's course stimulates the imagination and attention of both CSU students and their elementary school counterparts.



This fall, students in *CHEM 4400: Biochemistry I*, under the direction of Dr. Stone, and *CHEM 3090: Chemistry in the Elementary Classroom*, under the direction of Dr. Phillips, visited several Turlock elementary schools to engage younger students in science. CSU Stanislaus students worked in small groups to design science lessons

for the K - 6 students. The activities connect California K - 6 content standards with simple Chemistry experiments using accessible household products. The CSU students prepare their interactive presentations and practice the experiment before going into the elementary classrooms. This way, CSU students gain a better understanding of the material they are presenting, and prepares them to answer questions by the excited young learners. This gives CSU students the opportunity to increase their critical thinking and learning skills instructing younger students about the wonders of science in their everyday life.



Students Design Fun Science Experiments

During the semester, Turlock elementary students learned how to identify a household powder based on how it reacts with other substances. Other students learned how cleaning pennies involves chemical reactions. Previous experiments have demonstrated static electricity with balloons, discovering the connection between art and chemistry with "Magic Paper," or watching how molecules in an ink spot run up moistened paper while other molecules stay in place in the "Racing Ink" game.

Both Dr. Stone and Dr. Phillips note that their courses with a service learning component often have a higher pass rate and students' perception of their own learning is also higher in these courses. Dr. Phillips recognizes that service learning breaks down barriers that may prevent students from

Koni Stone, Ph.D.

Chemistry

Dr. Stone earned her B.A. from the University of Nebraska and her Ph.D. in Chemistry from Wayne State University in Detroit, Michigan. Dr. Stone is currently researching the molecular mechanisms of carcinogenesis, or how dietary fats and/or smoking causes cancer.

Shane Phillips, Ph.D.

Chemistry

Dr. Phillips earned his B.S., magna cum laude in Chemistry at California State University, Stanislaus and his Ph.D. in Chemistry from the University of California, Davis. Dr. Phillips concentrates his research in inorganic chemistry.

CSU Stanislaus students design exciting and fun experiments using household products for Osborn Elementary School children to learn the basics of chemistry while meeting content standards for their grade level.

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learning about science.

Junior high and high schools students also become engaged in science projects through the annual *Science Olympiad* held in the spring semester. For this day-long event, Dr. Stone's and Dr. Phillips's students design Chemistry and Biochemistry events for the Olympiad participants. CSU Stanislaus student, Christopher Cummings, had the following reflections on his involvement in the *Science Olympiad* during his Biochemistry course:

The service learning experience was very beneficial, mostly in that I obtained a greater mastery of the material through the process of researching and writing the test for the students. I have a deeper appreciation for the preparation that is invested in testing. This was much more demanding than learning the material through a traditional classroom setting, however, the extra effort has been compensated by a much deeper grasp of the material. Aside from the intellectual aspect, both the interactions with the other volunteers and the opportunity to aid in the education of others made this a truly enjoyable experience.

Providing valuable service to the community produces a significant science learning experience that excites young minds and deepens students of all ages in their understanding and presentation of science.

INTO THE 21ST CENTURY: WHAT SHOULD TODAY'S LEARNERS KNOW?

by Dr. Ramón Vega de Jesús,
Assistant Professor, Teacher Education



Dr. Ramón Vega de Jesús introduces *Science Night* to Osborn Elementary School students and their parents in Turlock.

Today's learners and educators face new challenges to prepare for future professions. According to estimates by the U.S. Department of Labor Statistics, today's learners will have had 10 to 14 jobs by age 38. That is an amazing prospect and is a sign of the exponential times in which we live. Many of today's major concentrations in higher education did not exist 10 years ago, such as e-business, new media, nanotechnology, and organic agriculture, to name a few.

The real question for today is: What should today's learners know so they are prepared for this challenge? Or we can ask: What jobs will they have when they enter the job market? The answer may sound simplistic but on the contrary it is rather complex. I have noticed that the types of skills utilized in science are also skills that will be needed for other job skill sets that a student may have in the future. Skills such as keen observation, inquisitive approach, hypothesizing, technological savvy, research methods, incorporating and/or applying new information are also needed to acquire professional degrees in higher education,



CSU Stanislaus students help Osborn Elementary students learn about the spectrum of light.

for example.

There is a great need for individuals to see higher education as an attainable goal in California's Central Valley. This necessity is even greater for Language and Cultural minorities in our region and the nation. To meet this vital need, I am collaborating with Osborn Elementary Dual Language School in Turlock. This semester, pre-service Bilingual teachers in *EDMS 4130: Science and Health Methods* worked with Turlock's Dual Language School that culminated in an exciting evening for

learning and fun known as *Science Night*. CSU students designed experiments that engaged the elementary students in a number of scientific demonstrations to excite them about the wonders and challenges of our fast changing world. Osborn students and their parents had the opportunity to participate and learn about science through standard-based science activities. Parents also had the opportunity to see how the knowledge base for this next generation of students differs from their own. All activities were conducted in both Spanish and English. topics included how polar bears survive in the Arctic, the human digestive system and diet, the spectrum of light, and soil erosion. Principal Ed Ewing and Assistant Principal Verónica Miranda have found the dialogue that ensues between university students and the Osborn students to be very valuable. Importantly, the school age students see role models familiar to them, since many CSU Stanislaus students are first generation university students. These first generation college students can share their background and dialogue about important issues, such as gaining access to higher education. Additionally, our university students benefit from learning about the challenges they will meet when they enter their own classrooms in the future.

Next semester I will be expanding this program to Creswell Elementary School, also located in Turlock. This collaborative program is an excellent way to build community relationships between CSU Stanislaus and the Turlock community. It is my hope that our college students can use these skills to further their studies and excel at their future jobs, however many they may be.

UPCOMING SERVICE LEARNING CONFERENCE

11th Annual Continuums of Service Conference

Theme: The Engagement Imperative: Academia, Students and
Community in Partnership

April 17 - 19, 2008 in Portland, Oregon

For registration, schedule and other information, go to
<http://www.cacampuscompact.org/events/2008-04-17.html>

Ramón Vega de Jesús, Ph.D.

Teacher Education

Dr. Vega de Jesús earned his B.A. from the University of Puerto Rico - Rio Piedras in Education, his M.S. from Springfield College in Physiology and his Ph.D. from the University of Connecticut-Storrs in Educational Psychology. His research interests include migration and multicultural issues in education and counseling, as well as cultural identity issues.



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