



Piner High STEM program visits School of Science & Technology at SSU

February 28, 2017

Piner High students were hosted by the School of Science & Technology (SST) at Sonoma State University as part of the STEM pipeline agreement between the two schools.

Dr. Lynn Stauffer, Dean of the School of Science & Technology, welcomed Piner students with encouragement to think beyond typical stereotypes for future careers. A computer science major herself in a once male-dominated sector and the first in her family to attend college, she reinforced the notion that STEM education is the wave of the future. The School of Science & Technology has the breadth to entice students with 9 departments ranging from Physics and Astronomy to Nursing or Kinesiology.

Undergraduate student Justin Hoijer shared his views on what makes SSU a great choice for college -- small class sizes in your major that allow you to better know your professors and fellow students creating a more collaborative and personal learning environment. He did also mention that in their dorms -- not only is the food great but you get your own bathroom too!



Dr. Jeremy Qualls (Physics) prepared a rotation through departments that emulated the hands on learning ethic of the school. In the Department of Engineering, students were impressed as SSU students presented their working models of robotic arms and hacked toy fire engine. On the left if Piner alumni Abe Palmerin (2010) shows off his soldering work using the microprocessor called Raspberry Pi !

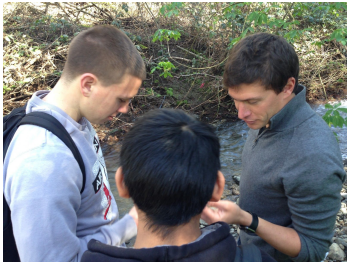
Dr. Bulent Sokmen demonstrated how research is done in Kinesiology by having a student work through various stages of exercise on a treadmill while monitoring the vitals. The data showed that even by walking as a form of exercise you are using 5X as much oxygen and burning calories.



Inkeeper worms and chimp skulls were part of the exploration students were led through in the Biology portion of the day. Specimens from the amazing SSU collection were shared with students and how these can be used to enhance learning and conduct research on campus. Dr. Pillai shared how students can participate in the Health Profession core as part of their pre-Nursing focus. Nursing students emphasized that many roads lead to a career in Nursing and getting good grades in prerequisite classes is key to acceptance into their program. They led students through an exciting version of a

Jeopardy style game to teach more about the human body and nursing skills.

Three math majors -- Bethany, Maddie, and Juan -- talked with students about majoring in math. These 3 undergrads were also leaders of SSU's Mathematics Honor Society (Pi Mu Epsilon), the Math Club, and MEChA. They talked about opportunities to study applied math (or real-world math) and pure math (or theoretical math) at SSU. They demonstrated a simple coding program that students can study at SSU, called *Mathematica*. *Mathematica* can be used to model or predict many real-world problems, such as the future population size of a herd in a species, the time of death of a cadaver, the speed of the spread of an airborne disease or an online meme. *Mathematica* can even be used to build a blackjack game, and Piner students had fun "doubling down" with 1s and 2s!



Two sessions were actually conducted outdoors -- the typical learning environment for Geology students and the Center for Environmental Inquiry. Students were led through a series of observations at Copeland Creek done by field scientists that would lead them to understand the different rock types present as well as their origin as we saw with

the basalt armoring of the creek. Tools of the trade were used on site, rock hammers, compass and the infallible field notebook !



Dr. Steve Farmer got students "lit up" about majoring in the field of Chemistry by demonstrating and explaining fluorescence. It was clear that his message touted that most all jobs up and coming in technology will depend on the principles of chemistry. His fast, fun presentation ended with students getting glow sticks and real chicle gum as take aways- a wonderful way to end the day !

Over 50 STEM students from Piner High were able to participate in this educational endeavor. Being on campus fulfills our MOU with Sonoma State in our bridge to STEM majors and was a follow up to their visit to our campus in September. Other areas of collaboration occur with a slew of SST Professors that present at our STEM cafe (Dr. Girman coming on March 9th), hold positions on our STEM committee that approves of our Level 3 Research projects for our STEM certificate program and invites our students to bear witness to their own **Symposium** of Research & Creativity Registration in the spring.