

## International Research Experience for Environmental Engineering Students

Every summer for the last 3 years, Dr. Natalie Mladenov, Associate Professor, Department of Civil, Construction and Environmental Engineering has been leading a National Science Foundation funded International Research Experience for Students (IRES) project in South Africa on agricultural water reuse systems at the food-energy-water nexus.

Dr. Mladenov's project has provided 6-8 week long authentic research experiences for 14 undergraduate and graduate students from SDSU and Cal Poly Pomona (CPP). Dr. Mladenov and colleague Dr. Monica Palomo from CPP recruited students through a competitive process and mentored students in research methodologies to prepare them for collaborative research.

Research projects were conducted on water reuse system performance, nutrient recovery, and energy recovery research in collaboration with students and faculty at the University of KwaZulu-Natal. IRES students presented posters and talks at regional and international conferences, published work in a peer-reviewed scientific journal and conducted outreach to K-12 groups.



Students from the 2017 cohort conduct an outreach activity on clean water with students in the 5th grade at Dailard Elementary near SDSU.



SDSU students Estefania Palacios and Amy Bigelow collect samples from an anaerobic baffled reactor treating wastewater for agricultural water reuse in Durban, South Africa.



Students from the 2015 cohort (pictured from L to R: Mesai Loffe and Natalie Melgoza from CPP; Amy Bigelow, Heather Tegley, and Federick Pinongcos from SDSU) viewing the constructed wetland treatment system at the experimental field site run by the University of KwaZulu-Natal.