

SPECIAL  
POINTS OF  
INTEREST:

- **WE<sup>2</sup>ST** welcomes 3 new Graduate Fellows and 5 new Undergraduate Scholars
- Undergraduates receive professional development and leadership training
- **WE<sup>2</sup>ST** Fellows and Scholars communicate their research through education and outreach activities

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ConocoPhillips Center for a Sustainable

**WE<sup>2</sup>ST**

Water-Energy Education, Science and Technology

FALL 2015

Meet Our New WE<sup>2</sup>ST Students:  
Graduate Fellows...

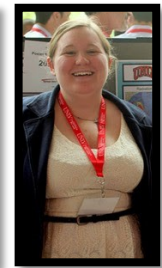
The ConocoPhillips WE<sup>2</sup>ST Center welcomed three new Graduate Fellows this fall. Kevin Chan comes to us with a M.S. in Civil and Environmental Engineering and a B.S. in Environmental Engineering, from CSM. He is working under the guidance of Dr. John Spear to explore the biological aspect of treatment options for oil and gas wastewater. Kara Marsac comes to us with a B.S. in Geoscience from Eastern Michigan University and a M.S. in Geology from University of Nevada Las Vegas. She is pursuing a

Ph.D. in Geochemistry under Dr. Alexis Navarre-Sitchler focusing on recycling processed water for oil and gas activities. Karl Oetjen joins us with a M.S. in Environmental Engineering and Science from Syracuse University and a B.S. in Geology and Environmental Science from SUNY Plattsburgh. He is currently working on a Ph.D. in Hydrology with Dr. Chris

Higgins developing characterization methods and assessing the efficiency of treatment methods for produced waters.



Kevin Chan



Kara Marsac



Karl Oetjen

...and Undergraduate Scholars

Five new Undergraduate Scholars were selected to join the WE<sup>2</sup>ST student cohort this fall. Kaylie Haynes is a junior in Chemical Engineering; she is working with Dr. Andrea Blaine to study irrigation of crops using produced water. Micaela and Michelle Pedrazas are twins from the Geophysical Engineering department. Micaela is working

with Dr. Terri Hogue on impacts of oil production and wastewater injection on the GRACE signal. Michelle is working with Dr. Alexis Navarre-Sitchler on the spatial distribution of subsurface water chemistry in the Permian Basin. Taylor Poynor is a junior majoring in Environmental Engineering; she is working with Dr. Tzahi Cath to study

the fouling characteristics of two different forward osmosis cellulose triacetate membranes. Holly Stuart is a junior in Chemical and Biochemical Engineering who is working with Dr. John Spear to characterize microbial communities associated with oil and gas production. Our new Scholars have all stepped in and done a fabulous job this fall!



Kaylie Haynes



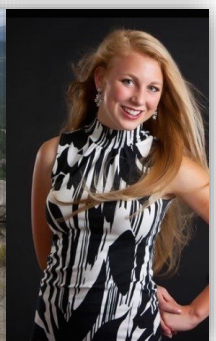
Micaela Pedrazas



Michelle Pedrazas



Taylor Poynor



Holly Stuart

# Undergraduate Scholar Training

Each semester all Undergraduate Scholars receive more than eight hours of professional development training. Scholar Trainings are developed by Dr. Andrea Blaine and facilitated by the WE<sup>2</sup>ST admin team; they are held each month and include dinner, business, and both professional and research skill building. Some of the topics include oral communication training, development of personal/career value statements, social etiquette training, and personality effects on teamwork, communication, leader-

ship and conflict resolution. In addition, this fall, all Scholars developed written research proposals and received extensive feedback from their instructors and peers. Scholar Trainings also provide additional collaboration time for Scholars to discuss their research efforts and make valuable connections with their colleagues. This specialized training program has resulted in the development of intangible professional and leadership skills that help make our WE<sup>2</sup>ST Scholars a cut above the rest!



Returning Scholars, Austin Shaffer and Kate Newhart, give an overview of WE<sup>2</sup>ST Research at Scholar Training



Scholars having some fun with a scavenger hunt during Scholar Training

*WE<sup>2</sup>ST provides more than 8 hours of professional development and leadership skill training each semester to all Undergraduate Scholars!*

## WE<sup>2</sup>ST Graduate Fellows and Undergraduate Scholars



Students pose for a picture at the 'Who's Who in the WE<sup>2</sup>ST' Breakfast



WE<sup>2</sup>ST Fellows and Scholars hard at work – the new center space provides plenty of room for collaboration

## WE<sup>2</sup>ST Fall Seminar Series

This fall, WE<sup>2</sup>ST hosted two campus-wide seminars. On Oct. 28<sup>th</sup>, Dr. Jeffrey Balmer, Ms. Sophia Holtsnider, and Mr. Patrick Sullivan from Encana delivered a presentation highlighting some of the water-related challenges they have encountered and the solutions they have implemented to develop oil and gas in a responsible way. On Dec. 2<sup>nd</sup>, Dr. Kyle Murray from the Oklahoma Geological Survey and the Uni-

versity of Oklahoma delivered a seminar titled, "Synthesizing Petroleum and Water Management Trends with Market Forces and Seismic Activity in Oklahoma." After both seminars, students and faculty had the opportunity to join the speakers for happy hour. This informal setting allowed for individual conversations with the speakers. The WE<sup>2</sup>ST Seminars are always well attended by students and faculty across all disciplines at CSM.



Dr. Kyle Murray from the Oklahoma Geological Survey delivers a WE<sup>2</sup>ST Seminar



Ella Walker, a WE<sup>2</sup>ST Fellow, introduces the seminar speaker

# Social Events Celebrate and Unite

Students in the WE<sup>2</sup>ST Center got to know one another a little bit better thanks to an all student breakfast in October. A team of Graduate Fellows planned the event to include a photo competition and a ‘fun fact’ guessing game. Students submitted both research and personal photos for the competition. They also submitted anonymous facts about themselves. At the breakfast, students voted on the photos and tried to match facts with people.



**Congratulations to our first WE<sup>2</sup>ST Graduate—Liz Bell!**

(Check out some of the student photos on page 4!) In December, students attended another fun event in the form of a holiday dinner. Students received etiquette training and competed in teams to set a proper business dinner place setting in the fastest time. The dinner also provided a time to celebrate the first WE<sup>2</sup>ST Graduating Fellow! We are proud to welcome Liz Bell as our first WE<sup>2</sup>ST Alumna!



**The winning team of students completes the place setting in 19 seconds**

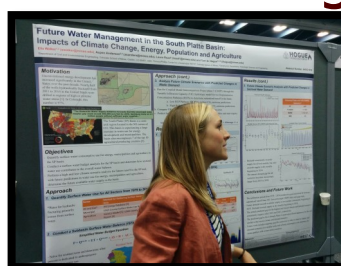
## WE<sup>2</sup>ST Students Shine in the Limelight



**Andrea Blaine and Scholar Aspen Anderson at the ARCS Award ceremony**

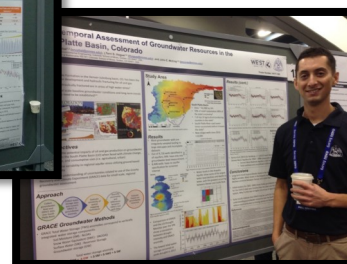
WE<sup>2</sup>ST students were in the public eye quite a bit this fall receiving awards and presenting

at conferences. Aspen Anderson, a WE<sup>2</sup>ST Undergraduate Scholar, received an ARCS (Achievement Rewards for College Scientists) Foundation research scholarship. In addition, 4 Graduate Fellows attended and/or presented at the American Water Resources Association conference in Denver, and 4 WE<sup>2</sup>ST students presented research at the American Geophysical Union conference in San Francisco.



**Ella Walker (left) and Chris Ruybal (right)**

**present posters at the AGU conference in San Francisco**

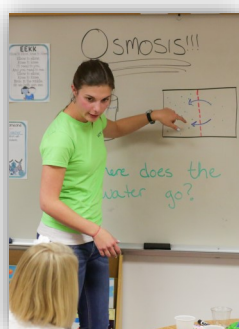


## Shelton Elementary Gives Students an Opportunity to Communicate Science



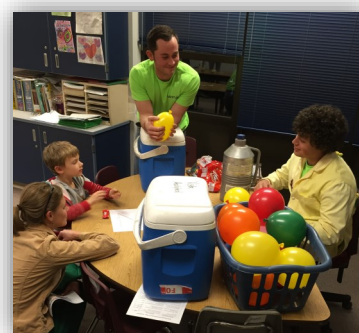
**Kevin Chan and Taylor Poynor explain water treatment**

The Education and Outreach efforts of WE<sup>2</sup>ST, led by Amy Martin, involved hosting a Math & Science Night at Shelton Elementary School as well as providing WE<sup>2</sup>ST students to help facilitate Shelton science labs on a regular basis. The theme of Shelton’s Math & Science Night was “Wild West”; it focused on the unique challenges that the West faces, especially with regard

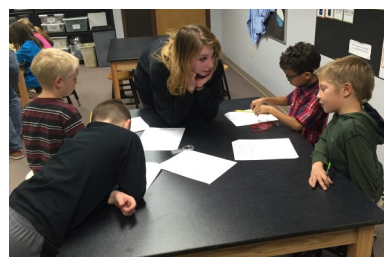


**Kate Newhart explains osmosis**

to water and energy. WE<sup>2</sup>ST Students led 9 different hands-on research stations which gave them numerous opportunities to share their science knowledge and current research. Parents and students alike valued this event; WE<sup>2</sup>ST received many compliments from Shelton’s staff and community members. Link to full story: <http://www.minesnewsroom.com/news/mines-leads-hands-science-demos-k-6-students>



**Karl Oetjen and Austin Roberts explain the Ideal Gas Law**



**Holly Stuart discusses how earthworms impact soil with 3rd graders**



## Colorado School of Mines

1500 Illinois St.  
 Golden, CO 80401

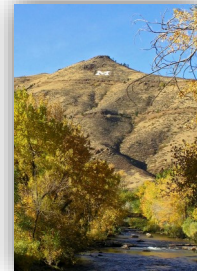
E-mail: WE2ST@mines.edu  
 Website: WE2ST.mines.edu

### Advisory Board:

**Fran Vallejo, ConocoPhillips**  
**Samer Adham, ConocoPhillips**  
**Willie Staudt, ConocoPhillips**  
**Kim Senger, CSM Foundation**  
**Kevin Moore, CSM, CECS Dean**



*The ConocoPhillips Center for a Sustainable WE<sup>2</sup>ST at Colorado School of Mines was formulated to promote the joint sustainability of unconventional energy production and water resources through education of water-energy literate graduate and undergraduate students and by conducting world-class research on critical topics in the field.*



### Leadership Team:

**Terri Hogue, Director**  
**John McCray, Deputy Director**  
**Andrea Blaine, Assistant Director**  
**Jessica Smith, Community-Corporate Relations**  
**Amy Martin, Education & Outreach Specialist**  
**Jackie Randell, Cassie Aungst, Administrative Assistants**

## New WE<sup>2</sup>ST Team Members

WE<sup>2</sup>ST welcomes Amy Martin as our Education and Outreach Specialist. Amy comes to us with a background in Civil Engineering; she previously worked for HDR as a consultant in Walnut Creek, CA. Amy has done a terrific job engaging the students in K-12 outreach activities. She is also serving as the Program Manager for the newly funded National Science Foundation Research Experi-

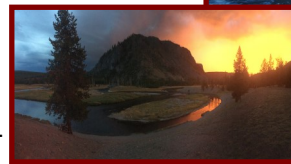
ence for Teachers—WE<sup>2</sup>NG Program led by Terri Hogue and Andrea Blaine. Jackie Randell has done a phenomenal job helping to get WE<sup>2</sup>ST up and running but is now moving to France. We welcome Cassie Aungst who will be replacing Jackie as our WE<sup>2</sup>ST Administrative Assistant. Cassie comes to us with a background in banking and insurance and adds great energy to our staff!



**Amy Martin, Education &**



**Cassie Aungst, Administrative**



**WE<sup>2</sup>ST**

*The nation's "go-to" institution  
 for research, education and outreach*

**Stay tuned** to hear about our upcoming trip to visit ConocoPhillips in Houston. The visit will include presentations from both ConocoPhillips employees as well as representatives from WE<sup>2</sup>ST leadership, faculty, and students.