



# CO-AMP Commentary

2012/2013



LOUIS STOKES COLORADO ALLIANCE FOR MINORITY PARTICIPATION

## CO-AMP Delivers Evidence Based Programming

Since its inception, CO-AMP has established and institutionalized numerous programs and activities that increase retention, academic excellence, and degree completion, as well as preparing our students for graduate school or careers. During the first year of this funding phase, our focus was on improving math performance for underrepresented minority students. To that end, CO-AMP developed a study to identify risk and protective factors in math success. The subsequent math study was pilot-tested and as a result of the study, CO-AMP began providing evidence-based recommendations to its partner institutions which enhanced math skill-building programs. In addition, Dr. Cheryl Beseler recently developed a research plan for implementation of an intervention in mathematics classrooms at Community College of Denver to be replicated at other two-year schools.

CO-AMP's second year of funding was devoted to helping students develop a science identity. The expansion of a new SACNAS chapter at Adams State University and another chapter in the planning stages at Otero Junior College is building a science identity infrastructure. During year two, CO-AMP sponsored a record number of students attending conferences and international research experiences as well.

This coming year, CO-AMP is focused on cultural competency and how culture influences the way we teach STEM courses. CO-AMP sites supporting cultural competency workshops for STEM faculty include the CSU-Fort Collins Cultural Diversity Summit, CU-Boulder BOLD Center diversity events, and the Adams State University Title-V cultural competency workshop. CO-AMP continues its programming efforts to significantly impact participants and our institutional partners to make profound and successful changes in STEM!

CO-AMP is funded through the NSF Louis Stokes Alliance for Minority Participation (HRD 1102523).

### CO-AMP LEADERSHIP



**Dr. Rick Miranda**  
Principal Investigator



**Dr. Ernest Chavez**  
Co-Principal Investigator and Program Director

### CO-AMP MANAGEMENT TEAM



**Mr. Dave Aragon**  
CU-Boulder



**Dr. Renee Beeton**  
Adams State University

### CO-AMP STAFF



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Program Manager



**Dr. Cheryl Beseler**  
Research Coordinator



**Dr. Don May**  
Data Manager



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## BRIDGE TO THE DOCTORATE 2013 - 2015

### BD5 at University of Colorado - Denver

On August 1, 2013 CO-AMP was notified by the National Science Foundation of a successful Bridge to the Doctorate (BD) award to the University of Colorado Denver (UCD). CO-AMP has now been funded for five BD cohorts—the first three awards beginning in 2006 to Colorado State University, and the most recently completed cohort at the Colorado School of Mines.

With its two campuses, one in Downtown Denver and one at the Anschutz Medical Campus (AMC), UCD is the only urban, research-intensive university in the Mountain States, and uniquely poised to offer state-of-the-art pre-doctoral training in a broad range of STEM disciplines to the upcoming BD cohort of twelve students. Currently, UCD offers sixteen masters and twenty-nine doctoral degree programs in STEM disciplines. The recently approved MS/PhD degree program in bioengineering exemplifies the interdisciplinary effort and cross-campus collaboration at the UCD campuses.

The proportion of undergraduate students of color at the combined Denver Campus and AMC has increased each year since 2005 and achieved a high of 32% in 2011. During this same time, the percent of students of color at the AMC has increased from 21% to 25%. The retention rate for freshman students of color at the combined campuses has increased from 73% in 2007 to 78% for the 2010 cohort. The persistence rate for students of color was consistently (4-9%) higher than for white students throughout this same period. With fifty "official" programs and events that support and promote diversity, a strong urban focus, and on-going efforts and commitments to pipeline programs on both campuses, UCD will bring a distinctly unique BD program to CO-AMP. Congratulations, University of Colorado Denver!



**Dr. Barry Shur**  
**Principal Investigator**  
Professor and Dean of the  
Graduate School at the  
University of Colorado Denver



University of Colorado  
Denver | Anschutz Medical Campus





## BD4: Colorado School of Mines

Colorado School of Mines, a public research university devoted to engineering and applied science, was awarded the Louis Stokes Alliance for Minority Participation (LS-AMP) Bridge to the Doctorate in 2010. In the fall of 2010, Bridge to the Doctorate Fellowships were awarded to a cohort of ten incoming graduate students. In fall 2011, a cohort of three BD Fellows was awarded the BD Fellowship for one academic year. We congratulate our BD Fellows from Colorado School of Mines on their successes!



Daniel Cano

### Daniel Cano

- Fall 2010 BD Fellow
- Graduated May 2013 – MS, Engineering Systems
- Enrolled Ph.D., Civil and Environmental Engineering–SmartGEO (IGERT) program



Andrea Casias

### Andrea Casias

- Fall 2010 BD Fellow
- Formal graduation December 2013 – MS, Metallurgical and Materials Engineering
- Employed full-time United Launch Alliance, Material & Process Engineer



Brendan Geels

### Brendan Geels

- Fall 2010 BD Fellow
- Formal graduation December 2013 – MS, Engineering Systems



Kerri Hickenbottom

### Kerri Hickenbottom

- Fall 2010 BD Fellow
- Graduated December 2012 – MS, Environmental Science and Engineering
- Enrolled Ph.D., Environmental Engineering Science, Colorado School of Mines
- Awarded EPA STAR Fellowship



Susana Macias

### Susana Macias

- Fall 2010 BD Fellow
- Graduated December 2012 – MS, Environmental Science and Engineering
- Employed full-time IBM/CCI, Bilingual Help Desk Support

### Manuel Montano

- Fall 2010 BD Fellow
- Enrolled Ph.D., Applied Chemistry, Colorado School of Mines

### Ashley Nagel

- Fall 2010 BD Fellow
- Graduated December 2011 – MS, Civil Engineering
- Employed full-time Fluor Corp., Associate Design Engineer II



Manuel Montano



Ashley Nagle



Mario Saldana

### Margarite Parker

- Fall 2010 BD Fellow
- Graduated May 2012 – MS, Mechanical Engineering
- Employed at Colorado Fuel Cell Center, Research Associate

### Shay Robinson

- Fall 2010 BD Fellow
- Graduated December 2012 – MS, Mechanical Engineering
- Enrolled Ph.D., University of Oslo, Norway

### David Walter

- Fall 2010 BD Fellow
- Graduated December 2012 – MS, Nuclear Engineering
- Enrolled Ph.D., Rutgers University, New Jersey

### Joseph Maestas

- Fall 2011 BD Fellow
- Formal graduation December 2013 – MS, Mechanical Engineering
- Enrolled 2013 Ph.D., Applied Mathematics and Statistics, Colorado School of Mines

### Meghan McGuire

- Fall 2011 BD Fellow
- Graduated May 2013 – MS, Environmental Engineering
- Employed full-time Halliburton, Associate Technical Professional

### Mario Saldana

- Fall 2011 BD Fellow
- Enrolled Ph.D., Chemical Engineering, Colorado School of Mines



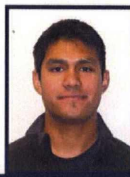
Margarite Parker



Shay Robinson



David Walter



Joseph Maestas



Meghan McGuire



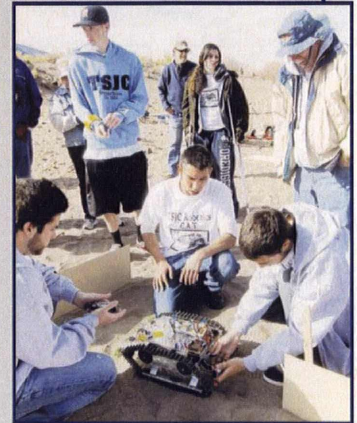
## CO-AMP STUDENT NEWS

### TSJC AT THE 7TH ANNUAL ROBOTICS CHALLENGE



It didn't take long for CO-AMP members of the robotics team from Trinidad State Junior College to pull ahead of the pack at the 7<sup>th</sup> Annual Robotics Challenge Saturday, April 6, at Great Sand Dunes National Park. The contest, sponsored by NASA and the Colorado Space Grant Consortium, puts student-designed robots through ground obstacles they might face on Mars. Obstacles included rocks, barriers, and holes all in the unforgiving terrain that makes the Dunes so difficult to traverse. Out of 18 robots competing, all but four were out of the run-

### TRINIDAD STATE JUNIOR COLLEGE



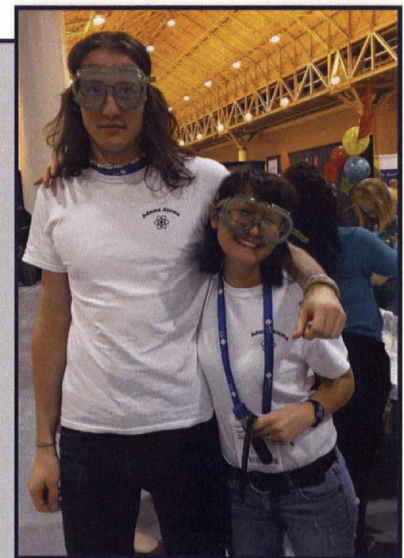
ning in the first 20 seconds, falling victim to mechanical problems or the inability to maneuver in the super fine sand. While four robots turned out to be quite mobile, only the entry from Trinidad State Junior College successfully homed in on a wireless beacon and dominated the first course. TSJC's Crawling Autonomous Terrabot, or CAT, moved on to challenges two through six. The stubborn CAT conquered the first five challenges but eventually failed at a large hole on Course 6. However, TSJC had the last robot left running at the end of the day! TSJC's demo table also took The People's Choice Award for the third straight year. The team presented their design ideas, including problems and how they were solved, at the Colorado Space Research Symposium on April 20. The team was enrolled in a class called Computer Sciences Special Topics. "Our job is to get students interested (in STEM), and hopefully they'll transfer to four-year colleges," said robotics program advisor Cynthia Clements.



### ADAMS STATE UNIVERSITY

**Vance Barksdale** and **Stephanie Savage** attended "Chemistry of Energy and Food" at the 2013 American Chemical Society conference in New Orleans where over 15,000 chemists, academics, students, and other profes-

sionals met to address one of the most important issues of our time – the relationship between chemistry and food in our society. A wide array of sessions were available including continuing education activities, specialized student programs, governance activities and employment counseling.



In April 2013, **Patrick Ortiz**, an ASU earth science student attended the Association of American Geographers annual meeting in Los Angeles where 7,000 geographers from around the world networked and attended presentations, poster sessions, workshops, and field trips regarding the latest research in geography, sustainability, and GIScience with leading scholars, experts, and researchers in the field.





## CO-AMP STUDENT NEWS (continued)



### MIRANDA SALAZAR, OTERO JUNIOR COLLEGE



Miranda Salazar is enrolled in advanced science and math courses as a concurrent student at Otero Junior College (OJC) and as a junior at La Junta High School. Salazar received CO-AMP funding and worked with the OJC STEM Program as a STEM Mentor during NASA Camp by assisting instructors and helping camp participants build robotic arms.

### PI DAY AT CCD

STEM Discovery is a newly formed student organization at the Community College of Denver with the goal of leading more students into STEM fields. STEM Discovery introduced and involved CO-AMP students during Pi Day on March 14, 2013 (Pi Day= 3.14, March 14) with the collaboration of the Math and Science Department and the Office of Student Life. There were multiple activities for students to engage and experience mathematics and learn how math can be used beyond the classroom. Exhibits at Pi Day highlighted hands-on science experiments with other exhibits having a career focus.



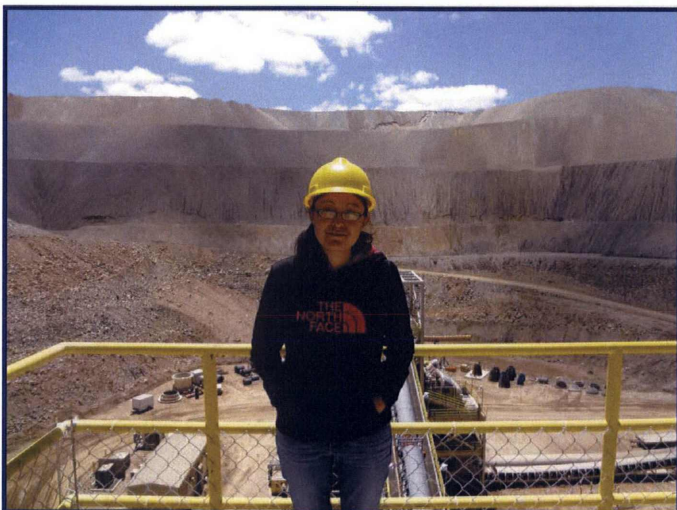
### FORT LEWIS COLLEGE



### DELILAH DOUGI, FORT LEWIS COLLEGE

CO-AMP supported Delilah Dougi, a senior geology student at Fort Lewis College, during her summer field school. Jessica Pierce, CO-AMP site coordinator said of Delilah, "Her determination and hard work is truly inspiring."

The photo is at the Cripple Creek & Victor Gold Mining Company in Victor, Colorado. "I truly appreciate CO-AMP for their support and encouragement during my summer '13 Geology Field Methods II Session'. Thank you," said Dougi.



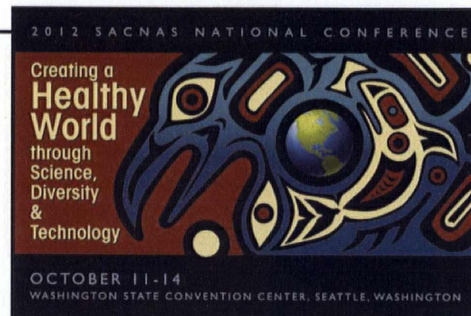


## CO-AMP STUDENT NEWS (continued)



### CSU SACNAS WINS SIXTH ROLE MODEL CHAPTER OF THE YEAR AWARD

For the sixth straight year, CSU's SACNAS chapter won the award for Role Model Chapter of the Year at the SACNAS National Conference. The chapter is managed in the College of Natural Sciences by Arlene Nededog, CO-AMP site coordinator and director of undergraduate retention programs. The CSU chapter provides students with an opportunity to work with peers, network, and gain opportunities in science. Twelve CSU faculty and advisory board members also participate in activities and workshops, assist with networking, and provide academic and moral support for the students. Nededog said, "My goal is to empower students to become leaders in the sciences. It takes many things to create this empowerment, and mentoring is a strong component of that. Then, you create the domino effect: I mentor students who, in turn, mentor younger students, and as they get older, they mentor other students."



### ARLENE NEDEDOG RECEIVES 2012 SACNAS DISTINGUISHED SERVICE AWARD

Arlene Nededog, CO-AMP Site Coordinator and Director of Enrichment and Retention at Colorado State University-Fort Collins, received the 2012 SACNAS Distinguished Service to the Society Award. She earned a BA in Social Work and an MEd, specializing in College Student Personnel Administration and has focused on working with students of color, women, and other underrepresented groups. Nededog has served as Director of Undergraduate Retention Programs in the College of Natural Sciences (CNS) where she provides experiential learning activities for undergraduates and develops connections between students and faculty. Through Students as Leaders in Science, the CSU SACNAS Chapter, CNS Ambassadors, and the new CNS Mentoring program, she has helped students become global leaders in the sciences. At CO-AMP, Nededog coaches students in leadership skills, and encourages participation in undergraduate research and attendance at professional conferences. She is actively involved in campus and community diversity training. Congratulations, Arlene for an outstanding honor!



### NEW SACNAS CHAPTER AT ADAMS STATE UNIVERSITY

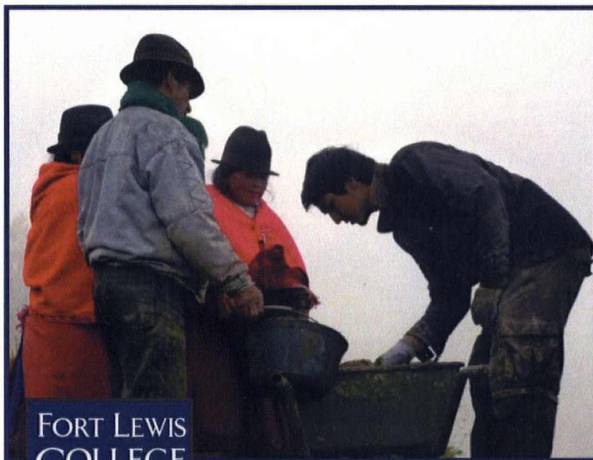
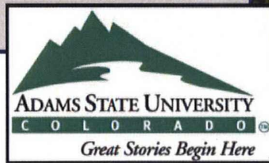
Fall 2013 marked the beginning of a new SACNAS chapter at Adams State University in Alamosa with start-up funds provided by CO-AMP. Five officers were installed and a constitution was drawn and approved. Several chapter members are planning to attend the October 2013 SACNAS National Conference in San Antonio, Texas.





## INTERNATIONAL CONNECTIONS: CO-AMP Students Travel to Costa Rica, Ecuador and Nicaragua

Adams State University biology student Keiko Woodyard traveled to Costa Rica this past summer as part of a program through New York University. This international experience provided Woodyard the opportunity to explore the endangered ecosystem of plants and animals in the high altitude cloud forests at Poas Volcano National Park and at the Monteverde Biological Private Reserve. She also studied rain forest ecology at low altitudes at Tortuguero National Park where she was able to observe nesting behavior of green turtles. In addition, she combined both local culture and ecology with a visit to a small coffee plantation (pictured) near the town of Grecia. At the plantation, students discussed the process of growing coffee and the implications of agriculture in a region that has tremendous biodiversity in a relatively small geographical area. According to Woodyard, "This was an amazing trip. I have never seen so many insects, reptiles, and birds with so many different species of plants in my entire life. I am so grateful to everyone that made this trip possible, including CO-AMP."



Noah Garcia (pictured far right in the photo) works with Quechua villagers to construct latrines in the remote village of Lilla, Ecuador in the all-volunteer program, Engineers Without Borders (EWB)

at Fort Lewis College. In addition to leading construction, Garcia was one of two much valued interpreters for the Village Aid Project. EWB supports students traveling to third-world countries by using engineering skills to improve the community infrastructure such as clean water, power, sanitation, and education. Students, faculty, and community members work together during the school year prior to the trip planning their projects, and then raising all of the funds necessary

to carry out the construction, including the price of materials. In summer 2013, CO-AMP supported four EWB students to travel to Ecuador and Nicaragua.

FORT LEWIS COLLEGE





## Steering Committee Meetings

Fall Meeting at University of Colorado — Boulder

November 2, 2012

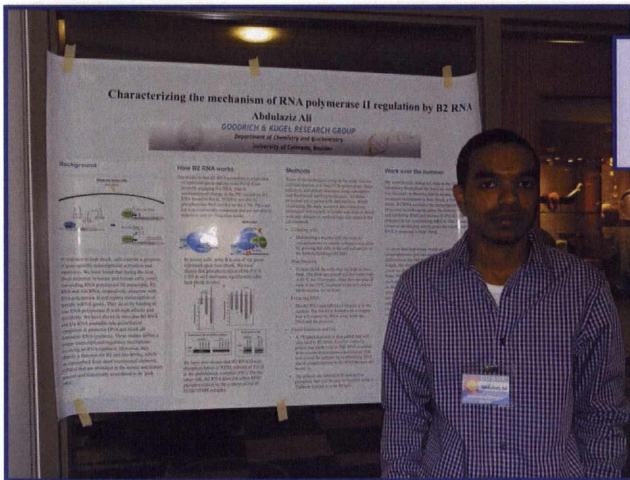
The Winter CO-AMP Steering Committee meeting was hosted by Dave Aragon and Dr. LaRuth McAfee of University of Colorado Boulder, on November 2, 2012. CO-AMP members were welcomed by Dr. Russ Moore, CU Boulder Provost. Dr. Ernest Chavez, CO-AMP Co-PI, led a discussion on data from the Colorado Commission of Higher Education, as well as a discussion of CO-AMP data and goals for the coming years. Guest speakers from University of Colorado Boulder included, Dr. Anne Dougherty and Silva Chang from CU's Department of Applied Mathematics, who presented "Mathematics Solutions for First-year Engineering Students." Dr. John Rand (left), National Science Foundation program officer, was the keynote speaker. His presentation included "Building a Successful Community College STEM Initiative" and a B2B funding update from NSF. Students from the Colorado School of Mines Bridge to the Doctorate program and CU Boulder undergraduate students displayed and answered questions about their research during a research poster session.



University of Colorado  
Boulder

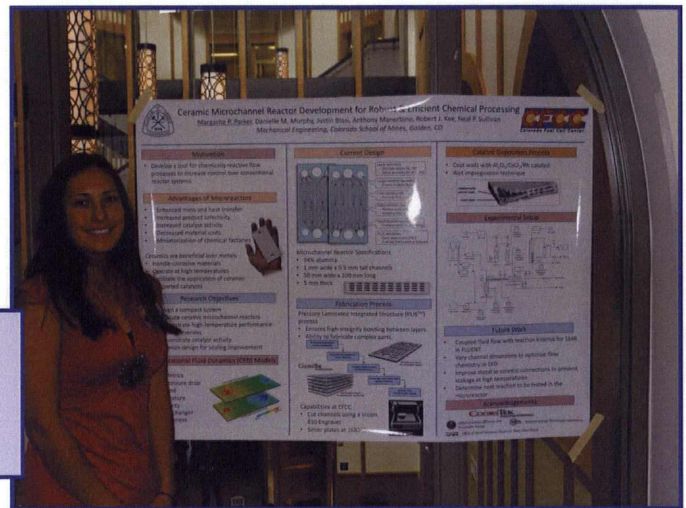


Dr. John Rand (left), National Science Foundation program officer, was the keynote speaker. His presentation included "Building a Successful Community College STEM Initiative" and a B2B funding update from NSF. Students from the Colorado School of Mines Bridge to the Doctorate program and CU Boulder undergraduate students displayed and answered questions about their research during a research poster session.



CU Boulder undergraduate student Abdulaziz Ali presented his research, *Characterizing the mechanism of FNA polymerase II regulation by B2 RNA*.

Margarite P. Parker, BD4 Fellow at Colorado School of Mines, presented her research, *Ceramic Microchannel Reactor Development for Robust & Efficient Chemical Processing*.

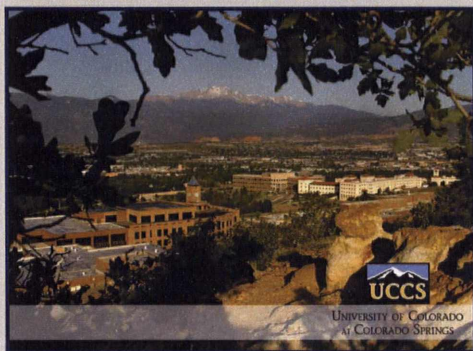




## Announcements

### STEERING COMMITTEE MEETING

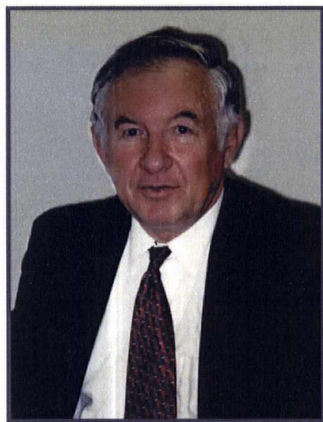
**October 4, 2013**  
**Hosted by Nancy Hoist**  
**University of Colorado—**  
**Colorado Springs**



**Featured Guest Speaker:**



**Dr. Ed Galindo**  
**Director, Natural Resources Tribal Cooperative**  
**University Of Idaho**



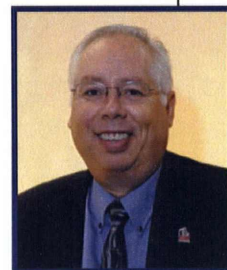
**Dr. Larry Johnson**  
**1942-2013**  
**In Memoriam**

Dr. Larry S. Johnson, who was instrumental in establishing CO-AMP in the mid 1990s passed away on September 11, 2013. Dr. Johnson became involved in CO-AMP because he saw graduation rates for minority students as "abysmal." Dr. Johnson said at the time, "I feel that if we give support, more

will graduate. The goal is graduation – not anything short of that." It was this commitment to underrepresented minority students that endeared him to so many. Dr. Johnson was the director for the Summer Science Institute and the Center for Math, Science, and Environmental Education, a math professor, and a former dean of the School of Letters, Arts and Sciences at Metropolitan State University. Not only did Dr. Johnson serve as a Site Coordinator and member of the CO-AMP Management Team, he was a treasured friend of CO-AMP and will be greatly missed.

### CO-AMP LEADERSHIP NEWS:

In July 2013, Dr. Hector Carrasco retired as CO-AMP Management Team member and Dean of the College of Education, Engineering, and Professional Studies at Colorado State University-Pueblo. In 2009, Dr. Carrasco was named Outstanding Educator of the Year by the Society of Mexican American Engineers and Scientists (MAES). Dr. Carrasco was an integral part of CO-AMP and has been involved since its early development in 1996. We wish you the best, Hector!



Dr. Renee Beeton, CO-AMP site coordinator and assistant professor of chemistry at Adams State University, was recently named to the CO-AMP Management Team. In 2011, Dr. Beeton received the Adams State Presidential Teacher Award that recognizes outstanding undergraduate teaching, advising, and mentoring. She received her BS in chemistry from North Dakota State University, a MS in chemistry, a Ph.D. in chemical education from the University of Northern Colorado, and tenure status at ASU in 2013. Welcome, Renee!





## CO-AMP Site Coordinator Team



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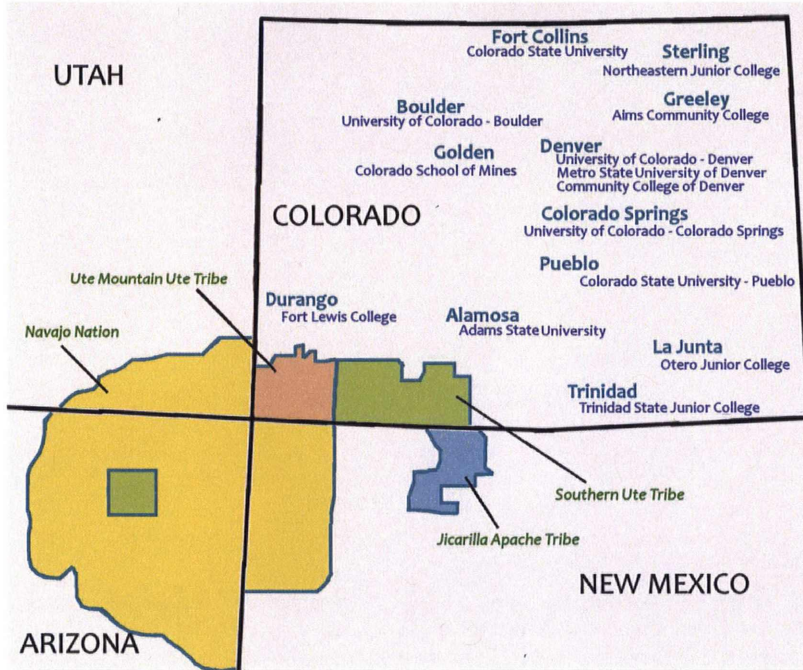
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## Serving Colorado and the Four Corners Region



UNIVERSITY OF COLORADO DENVER

### CO-AMP Industry Partners



Ball Aerospace



Hewlett-Packard

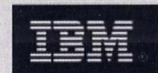
NREL National Renewable Energy Laboratory



Seagate Technologies



Boeing



IBM

El Paso Corporation



Eastman Kodak



Leprino Foods



AMD



Leprino Foods



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## Note from the Principal Investigator:

Dear CO-AMP Colleagues and Friends,

CO-AMP remains an innovative consortium that strives to increase the quality of education for underrepresented minorities in STEM fields while continuing to build an infrastructure for collaborative programs and activities. Our goal for CO-AMP continues to be institutionalization of educational programming for minorities in STEM fields by integrating those students into college life; developing early faculty advising and mentoring; communicating the needs and issues to CO-AMP members; and increasing communication of effective programming across partner institutions.

We are very proud of CO-AMP's accomplishments as highlighted in this newsletter including the recent 2013-2015 National Science Foundation Bridge to the Doctorate (BD) award to the University of Colorado at Denver. BD funding will enable UC Denver to attract and support talented underrepresented minority students who are interested in pursuing doctorate degrees in a broad range of STEM disciplines.

So, it is with great pleasure that we share our 2012-2013 newsletter, CO-AMP Commentary, that features some of our successes. Unfortunately, there isn't enough room on these pages to highlight every achievement, but it is our hope that this publication will serve as a source of information, as well as a tribute, to our dedicated individuals who through commitment and tireless effort sustain their passion for the education of CO-AMP students.



**Dr. Rick Miranda**  
*Principal Investigator of  
CO-AMP and  
CSU Provost/Executive  
Vice-President*

*Dr. Rick Miranda*