

CO-AMP Commentary

2013/2014



LOUIS STOKES COLORADO ALLIANCE FOR MINORITY PARTICIPATION

CO-AMP Explores Future Programming at Partner Institutions

CO-AMP has continued to take a broad approach in further reducing our attrition rates in the last three funding years by supporting engagement programs and activities that assist students in developing math competency and a scientific identity. Our fourth year seeks to address cultural awareness in STEM based programming.

As part of our efforts aimed at improving math competency at our two-year college partner institutions, CO-AMP submitted a proposal (under review) to the National Science Foundation to conduct a workshop with the purpose of providing community college algebra instructors with evidenced-based teaching approaches and materials designed to aid students in mastering concepts through peer-assisted learning and personal reflection exercises. This proposal was a direct outcome of a focus group conducted in the summer of 2013 with math instructors from three community colleges—Aims Community College, Community College of Denver and Front Range Community College.

To further address engagement programs and promote activities that assist students in developing a scientific identity, a two-day spring conference was held entitled, "Broadening Participation through Campus Innovation: Methods and implementation strategies for STEM" on the Colorado State University campus May 29-30, 2014. The conference introduced empirically supported tools and methods to enhance, retain, and graduate underrepresented populations in STEM; and to provide attendees with hands-on workshops related to the implementation of these methods at their own institutions.

Given that cultural awareness and understanding can be the difference between success and failure in a business environment, preparation for students and faculty is also imperative to a globally engaged workforce. CO-AMP continues to create international opportunities that enhance CO-AMP students' academic experience and thereby creates a larger network of international acceptance and understanding. Each CO-AMP partner institution also continues to build upon our paramount mission of training and preparing the next generation of young scientists who will diversify the workplace in science and other fields, enhancing the economic vitality of our state, nation and world.

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

CO-AMP LEADERSHIP



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Principal Investigator

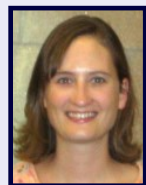


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Co-Principal Investigator and Program Director

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BRIDGE TO THE DOCTORATE 2013 - 2015

BD5 at University of Colorado - Denver

University of Colorado Denver was awarded Bridge to the Doctorate funding through the National Science Foundation and enrolled their cohort of twelve Fellows in fall 2014. 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 institution in the Rocky Mountain States, and uniquely poised to offer state-of-the-art pre-doctoral training in a broad range of STEM disciplines to the BD cohort.

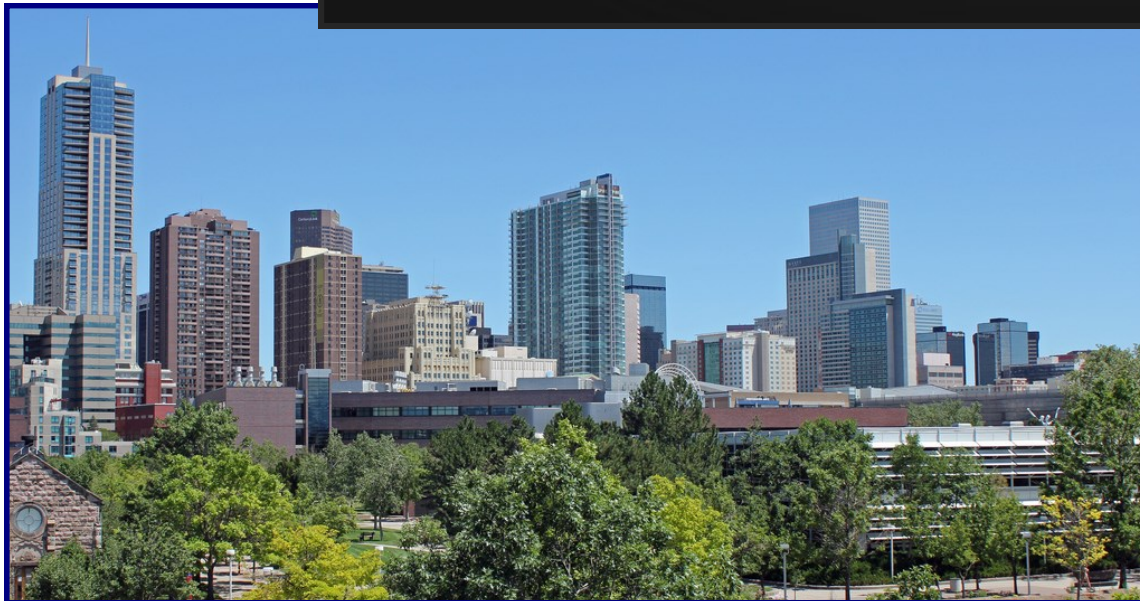
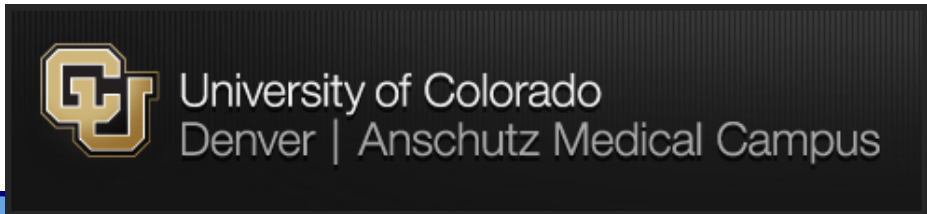
Currently, UCD offers sixteen masters and twenty-nine doctoral degree programs in STEM disciplines. The proportion of undergraduate students of color at the combined Denver Campus and AMC has increased each year since 2005 and achieved a high of 32% in 2011. During this same time, the percent of students of color at the AMC has increased from 21% to 25%. 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 brings a distinctly unique BD program to CO-AMP.



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CO-AMP COMMENTARY

BRIDGE TO THE DOCTORATE STUDENTS 2013 - 2015



Andres Andrade
Biology
University of Colorado Denver
Current PhD program:
Forest Ecology
Area of Interest:
Ecological succession



Ashley Bourke
Biochemistry and
Molecular Biology
Michigan State University
Current PhD program:
Pharmacology
Area of Interest:
Neuropharmacology



Henok Ghebrechristos
Physics
University of Colorado Boulder
Current PhD program:
Computer Science
Area of Interest:
Quantum computing



Natalia Gurule
Biochemistry
University of New Mexico
Current PhD program:
Cancer Biology
Area of Interest:
Mechanisms of Oncogene
dependency



Alejandro Henao
Civil Engineering
University of Colorado Boulder
Current PhD program:
Civil Engineering
Area of Interest:
Transportation Research



Natalie Herrera
Immunology and Microbiology
University of California Irvine
Current PhD program
Microbiology
Area of interest:
Virology and Pathogenesis



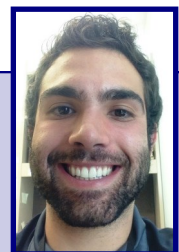
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University of Texas
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Current PhD program:
Immunology
Area of Interest: Auto-
immunity, Cancer, & Tolerance



Cindy Munoz
Mechanical Engineering
University of Colorado Denver
Current PhD program:
Mechanical Engineering
Area of Interest: Modeling
plant cell growth using
Engineering principles



Chinyere Okpara
Mathematics
Rutgers University Newark
Current PhD program:
Applied Mathematics
Area of Interest:
Statistics



David Presby
Exercise Science
Rutgers
Current PhD program:
Integrated Physiology
Area of Interest:
Molecular Metabolism



David Ramirez
Mechanical Engineering
University of Colorado Boulder
Current PhD program:
Mechanical Engineering
Area of Interest:
Bioengineering of plant cell
growth



Madia Stein
Chemical Engineering
University of New Mexico
Current PhD program:
Bioengineering
Area of Interest:
Tissue Engineering



CO-AMP STUDENT NEWS

TSJC ROBOTICS TEAM

CO-AMP students at Trinidad State Junior College (left to right, Hayden Alworth, lead programmer; Andrez Leyva, lead builder; Mary Carpenter, electronics lead; Eric Perry, lead designer; and Camille Arnn, team captain) worked together on the Autonomous Logical Land-based Electronic Navigator, aka A.L.L.E.N. (a robot entry), for the 2014 Robotics Challenge held at the Great Sand Dunes National Park and Preserve. A.L.L.E.N. has four wheels, a sensor platform, a flexi-force bump sensor, a beacon transceiver, a compass, a tilt sensor



and Sharp Infrared sensors, all working together using a highly advanced computer language installed on a computer chip developed by Parallax, Inc., the Rocklin, CA technology firm assisting the TSJC robotics students. In addition, A.L.L.E.N. is completely autonomous, making all its decisions based on its programming, not relying on a remote control. TSJC's robotics team also presented at the Colorado Space Grant Consortium's research symposium at the University of Colorado in April 2014 to judges in the aerospace/robotics industry.



Photos courtesy of Greg Boyce / Trinidad State Junior College



ANDREZ LEYVA ATTENDS DC MEETING

CO-AMP student Andrez Leyva from Trinidad State Junior College and lead builder on the Trinidad State Robotics Team, earned a trip to the National Council of Space Grant Director's 2014 Spring Meeting in Arlington, VA where he met design engineers from the National Aeronautics and Space Administration. Leyva networked with other students and met with representatives from other colleges as well as with representatives of Congress in support of funding for NASA's Space Grant program. Leyva is a pre-engineering student from New Mexico with plans for a bachelor's degree in mechanical engineering.



Photo provided by Laurine Szymanski / Otero Junior College

STEM MENTORS AT OJC

At left, CO-AMP students from Otero Junior College (left to right, Jordan Moniz, Christian Estrada, Gabe Guerrero) participate in the STEM Mentor Program as supplemental instructors in the OJC Math Lab. Mentors tutor students in pre-college level math courses, trigonometry and calculus, and share first-hand knowledge on successfully preparing for math courses. Math tutors provided 320 hours of tutoring to OJC students.





CO-AMP STUDENT NEWS (continued)

PI DAY 2014 AT CCD

Community College of Denver celebrated Pi Day on March 14, 2014 (Pi Day = 3.14, March 14) with the collaboration of CO-AMP, the Math and Science Department, Office of Student Life and the STEM Discovery Student Organization. Students participated in multiple activities to experience mathematics and learn how math can be used beyond the classroom. The STEM Discovery Student Organization sponsored several exhibits. Exhibits at Pi Day highlighted hands-on science experiments with other exhibits having a career focus. This year, CO-AMP students at CCD participated in a marble project developed in their calculus-based physics class.



Photos provided by Zina Stilman / Community College of Denver



STEM FIELD EXPERIENCE

In May 2014, CO-AMP sponsored five Northeastern Junior College students (Alexis Blagg, below left; Denzel Stewart; Dominick Pollack; Mathew Helfer; and Xavier Cox, below right) to travel to three natural areas (Colorado National Monument, Arches National Park, Canyonlands National Park) for a STEM field experience. Students combined geography, science, engineering, technology, and math in real life settings. Among the lessons learned were identifying rock formations in the canyons and identification of plant and animal species. Arches National Park, containing the world's largest concentration of natural stone arches, is a red, arid desert, punctuated with oddly eroded sandstone forms such as fins, pinnacles, spires and balanced rocks.



Photos provided by Cyndi Hofmeister / Northeastern Junior College



CO-AMP STUDENT NEWS: SACNAS



NEW SACNAS CHAPTER MEMBERS AT ADAMS STATE UNIVERSITY ATTEND NATIONAL CONFERENCE IN SAN ANTONIO, TX

CO-AMP provided start-up funds for a SACNAS chapter on the ASU campus with Dr. Kristy Duran (biology) taking the lead as chapter advisor. The chapter was inducted as an ASU sanctioned club, and five STEM majors were selected as inaugural officers. Three newly elected officers, Sasha Vigil, Julie Madden, and Stefan Ortega (pictured from left to right), were supported by CO-AMP to attend the National SACNAS meeting in October 2013.

Photo provided by Renee Beeton / Adams State University



Photo provided by CSU SACNAS Chapter / Colorado State University

CSU STUDENTS ATTEND SACNAS 2013

CO-AMP supported ten students from Colorado State University to attend the 2013 SACNAS National Conference "Strengthening the Nation Through Diversity, Innovation and Leadership in STEM" in San Antonio. Founded in 1973, SACNAS celebrated 40 years of highlighting the unique contributions and perspectives of Hispanics/Chicanos and Native Americans in science.



MINES STUDENTS PRESENT POSTERS AT 2014 SACNAS CONFERENCE



PhD student Kennda Lynch (left). Almaraz and Matthews were supported by CO-AMP and have been doing undergraduate research with Lynch for the past year.

Almaraz's poster was titled: *Structural and Elemental Characterization by Scanning Electron Microscopy of Hypersaline Microbial Mats from the Great Salt Lake Desert* and focused on analyzing the structural and elemental composition of the hypersaline playa in Pilot Valley to determine the dynamics in this environment which is useful in astrobiology and future space exploration.

Matthew's poster focused on the amount of carbon inside samples taken within Pilot Valley with a research goal to obtain and assess the amount of inorganic and organic carbon in hypersaline sediments in comparison to microbial diversity.

Photo provided by Andrea Salazar Morgan / Colorado School of Mines



NEW SACNAS CHAPTER FOUNDED AT OTERO JUNIOR COLLEGE

In spring 2014 Otero Junior College established a SACNAS Chapter headed by Yolonda Jaramillo, STEM Grant Activity Directory. An informational chapter meeting was held on August 26, 2014, and in October, a Forensics Laboratory was presented by Dr. Kristi Tschetter, Biotech faculty.





CO-AMP COMMENTARY

INTERNATIONAL CONNECTIONS: CO-AMP Students Travel to Australia and Nicaragua



AUSTRALIA, JULY 2014

In July 2014, Adams State University CO-AMP student Darin Sisneros travelled to Australia to participate in a two-week academic program. The course focused largely on the immense biodiversity of organisms and diverse habitats of the rain forest. In addition to guided group experiences, Sisneros was able to learn from aboriginals about their culture, history, customs, and how they were affected after European influence.

Sisneros summed up his international experience by saying, "This program was truly an experience of a lifetime and it allowed me to be more culturally competent." During his time in Australia he was also able to explore Sydney, national parks, and the Great Barrier Reef.



Photo provided by Renee Beeton / Adams State University



NICARAGUA, MAY 2014

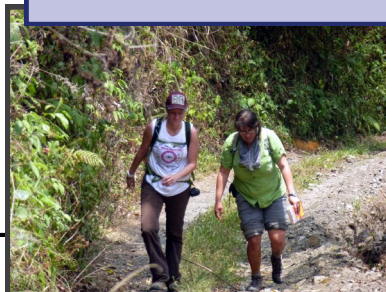
In May 2014, Fort Lewis College CO-AMP students Noah Garcia (engineering), Tori Bishop (engineering), Ashley Garcia (biology), and Emily Aguierre (engineering) participated as part of a ten-person team who spent two weeks in the remote village of San Francisco de Limon in northern Nicaragua constructing a water system. The four CO-AMP students worked on the Engineers Without Borders project throughout the school year completing the engineering design, preparing an education program and necessary logistics.

Bishop was part of a senior design team at FLC that developed a new intake structure design for small gravity-fed water systems in the developing world. This is an important, year-long, capstone design course that all seniors take. For Bishop it was even more significant because after completing the design in April, she traveled to Nicaragua and lead a group of students and villagers who constructed the structure.

In addition to the intake structure, students constructed a ferro-cement water storage tank and a 4km pipeline that ran from the intake structure to the tank. Students lived with families and worked side-by-side with villagers during the duration of the project.



Emily Aguierre works on the tank (above). Tori Bishop and Ashley Garcia hike to the water source (below).



Above, Noah Garcia and a villager mix concrete for the tank, and below, Ashley Garcia cuts bamboo.



Photos provided by Don May / Fort Lewis College



CO-AMP SPRING CONFERENCE

Colorado State University

May 29-30, 2014

A two-day spring conference was held on the Colorado State University campus entitled, *Broadening Participation through Campus Innovation: Methods and implementation strategies for STEM*. The conference introduced empirically supported tools and methods to enhance, retain, and graduate underrepresented populations in STEM; and to provide attendees with hands-on workshops related to the implementation of these methods at their institutions. The first day of the conference focused on peer mentored learning/Peer-Led Team Learning (PLTL) and Learning Assistant (LA) Programs. Focus for the second day was on Learning Communities for Community Colleges and Universities (including both residential and commuter campuses).

Scholars from across the country discussed their successful programs, including testimonials from CO-AMP students who benefited from these programs. Scholars included: Dr. Laurie Langdon from the University of Colorado Boulder who presented: *The Learning Assistant (LA) Model for Peer-Mentored Learning*; Dr. Lance Shipman Young from Morehouse College in Atlanta, Georgia; Tae

Nosaka from Colorado State University Fort Collins who presented: *Against All Odds – The Impact of a Comprehensive Residential Learning Community on a Diverse Student Population*; Liya Escalera and Amparo Hernandez-Folch from Bunker Hill Community College in Boston Massachusetts; and Ann Scarritt and Robyn Sandekian of the University of Colorado Boulder who presented: *A Taste of CU Boulder Learning Communities - Residential Academic Programs in Engineering and Leadership, and Engineering/Math Centers*.



Dr. Rick Miranda (above right), Provost/Executive Vice President and CO-AMP Principal Investigator, welcomed attendees to the Spring Conference. Photo at left shows Dr. James Curry presenting the NSF poster, "Young STEM Scholars Point to LSAMP's Many Faces" to Dr. Ernest Chavez, CO-AMP Director. Break-out workshops (below) were conducted by presenters each day at the conference.





CO-AMP COMMENTARY

CO-AMP SPRING CONFERENCE

Colorado State University

May 29-30, 2014



Dr. James Curry, National Science Foundation Program Director, opened the Conference with a recap of the NSF vision and NSF programs of special interest.



Liya Escalera (left) and Amparo Hernandez-Folch (right) from Bunker Hill Community College in Boston Massachusetts presented on Learning Communities at a Commuter College.



Dr. Lance Shipman Young from Morehouse College in Atlanta, Georgia presented: A Path to STEM Success: Peer-Led Team Learning in the Division of Science and Mathematics.

Carissa Marsh (top left), graduate student from University of Colorado Boulder and former Learning Assistant, discussed her experiences with LA-model courses. Colorado State University students, Joseph Espinoza (top right), Bayleigh Arey (bottom left), Willy Salinas (bottom center), and Alexis Palmer (bottom right) provided testimonials on the benefits of Learning Communities.



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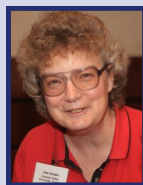
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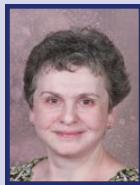
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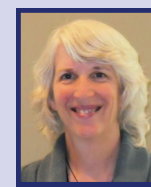
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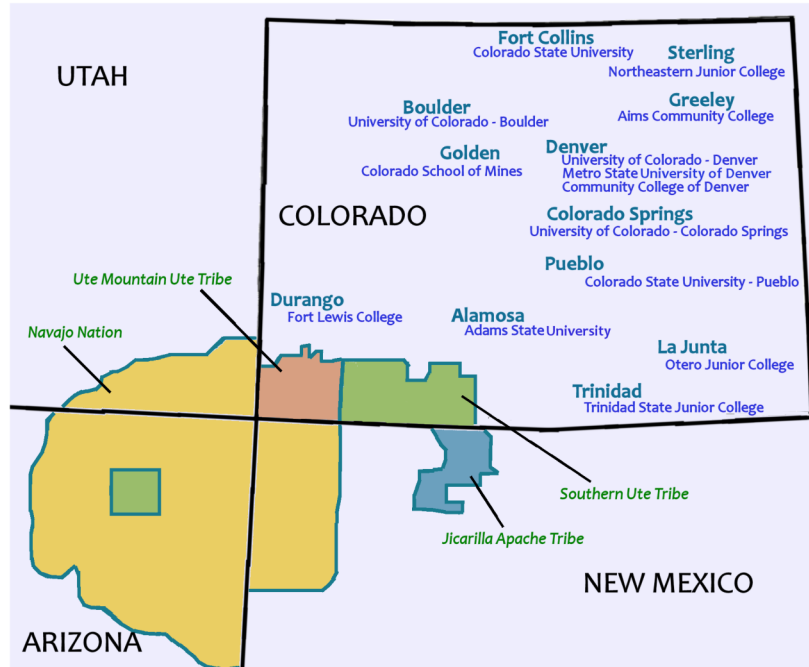
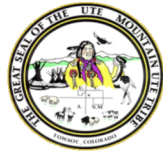


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CO-AMP COMMENTARY

Serving Colorado and the Four Corners Region



UNIVERSITY OF COLORADO DENVER

CO-AMP Industry Partners



Ball Aerospace



Hewlett-Packard

NREL National Renewable Energy Laboratory



Boeing



IBM

Seagate Technologies



El Paso Corporation



Leprino Foods



AMD

Eastman Kodak



Leprino Foods

Announcements

SAVE THE DATE! CO-AMP SPRING MEETING

Hosted By: Danelle Wilder and
Joy Gonzales

National Renewable Energy Laboratory
(NREL)
Golden, CO
<http://www.nrel.gov/>

FRIDAY, APRIL 24, 2015



CO-AMP WEBSITE RESOURCES

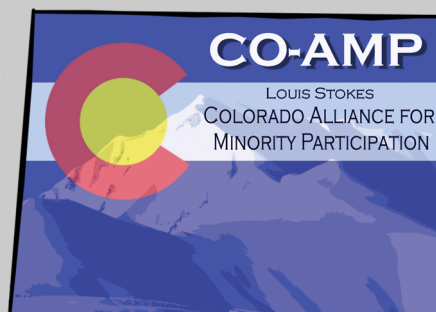
Check out these links for additional
CO-AMP resources and opportunities!

[Student Opportunities](http://www.coamp.colostate.edu/opportunities.shtml)

<http://www.coamp.colostate.edu/opportunities.shtml>

[Site Coordinator Resources](http://www.coamp.colostate.edu/sitecoord.shtml)

<http://www.coamp.colostate.edu/sitecoord.shtml>



WWW.COAMP.COLOSTATE.EDU

<http://www.coamp.colostate.edu>

Note from the Principal Investigator:

Dear CO-AMP Colleagues and Friends,

It is with great pleasure that we share our 2013-2014 newsletter, CO-AMP Commentary. Here you'll read about student research, organizations, accomplishments, conferences and international activities represented by our alliance of fourteen Colorado partner institutions. It's always positive for me to look over the years of CO-AMP activities to see how much we have done, from educational development to international research in distant corners of the world. I am delighted to be part of such a dynamic and caring community of dedicated individuals whose commitment and tireless effort sustains their passion for the education of CO-AMP students.

As always, we welcome your interest in the CO-AMP program and this community of educational leaders. Visit us online at <http://www.coamp.colostate.edu> where you can view program updates, including previous newsletters, and program resources. For those of you who want to know more about the Louis Stokes Alliance for Minority Participation program, check out this video produced by California State University's LSAMP: [Becoming a Scientist or Engineer: Your Pathway to the Future with LSAMP](http://youtu.be/Li90yoX_dGA) (http://youtu.be/Li90yoX_dGA) featuring LSAMP students and alumni.



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

Dr. Rick Miranda