

Research Experience for Community College Students in Colorado: Insights on Improving the the Pipeline of 2YC Students into the Geosciences

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Overarching Goal



Give community college students an authentic research experience that allows them to explore geosciences and gain the confidence to successfully transition to a 4-year program in the STEM disciplines.

The Need

100,000+ students at 13 CO community colleges

“Your internship program offers invaluable opportunities to our students, and are especially important to community colleges, as we typically don’t have our own research projects in which to engage students. At the same time, we have many students who have an aptitude and interest in science and who can benefit greatly from hands on scientific work.” **President, Front Range CC**

“Before the program I wasn’t sure about attending a 4-year college. After speaking with the people in the program, my fellow interns, who had the same worries I did, and the people who have gone through the 4-year process and the grad student process, I am confident and I want to do it.” **RECCS alumnus**

Evaluation

Pre-Program:

- Individual Interview

First Week:

- Perceived confidence & Grit measures
- Graphing and scientific skill test
- Nature of Science Questionnaire
- Test of Science Literacy

Ongoing:

- Weekly reflection survey
- Blogging

End of Program:

- Posttests *[see first week]*
- URSSA
- Reflection Survey
- Individual Interview

**Intro
Week**

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Mentor Feedback

- Check-ins
- Reflection on student

Shout-out to REU-GEO 2016!



Structure

- *10 community college students for 9 weeks*
- *Semi-residential program*
- *Stipend \$500/week & gas stipend*
- *Intensive first week*
- *1 day/week half-day training: Communicating Science (UCAR), Excel, soft skills, ethics*
- *Brown bag with professionals*
- *Products: poster session at UCAR; oral presentation at CIRES*



First Week

Goals:

- Set *expectations*
- *Mentor-mentee relationship*
- *Build a cohort*
- *Begin learning to think like a scientist*



Recruiting Students

- *Pilot 2014 – shotgun approach*
- *2 super cheerleaders – CCD and FRCC*
- *CCCS meeting & statewide networks*
- *Alumnae – classroom visits, posters, flyers*



Recruiting Students

- *Different educational backgrounds*
 - *Minimum gpa; math & science classes*
- *Couple of weak students each year*

2016 RECCS Applications from Community Colleges		
Community College	Total Applicants	Selected Interns
Aims Community College	2	0
Arapaho Community College	2	1
Colorado Mountain College	2	0
Colorado Northwestern Community College	6	2
Community College of Aurora	4	1
Community College of Denver	4	2
Front Range Community College	12	1
Northeastern Junior College	–	–
Otero Junior College	–	–
Red Rocks Community College	5	3

RECCS Applicant Demographics		
Year	2015	2016
Total Applicants	39	37
First Generation College	10	13
Of Color	6	6
Veteran	1	1

Recruiting and Mentor Preparation

Recruiting

- *Robust E/O Program with longstanding relationships*
- *Critical Zone Observatory*
- *Benefits of mentoring*



Preparation

- *Individual meetings with mentoring group*
- *Weekly newsletter*
- *Visit lab once & mid-program survey*

Matching is tricky

No hard & fast rules

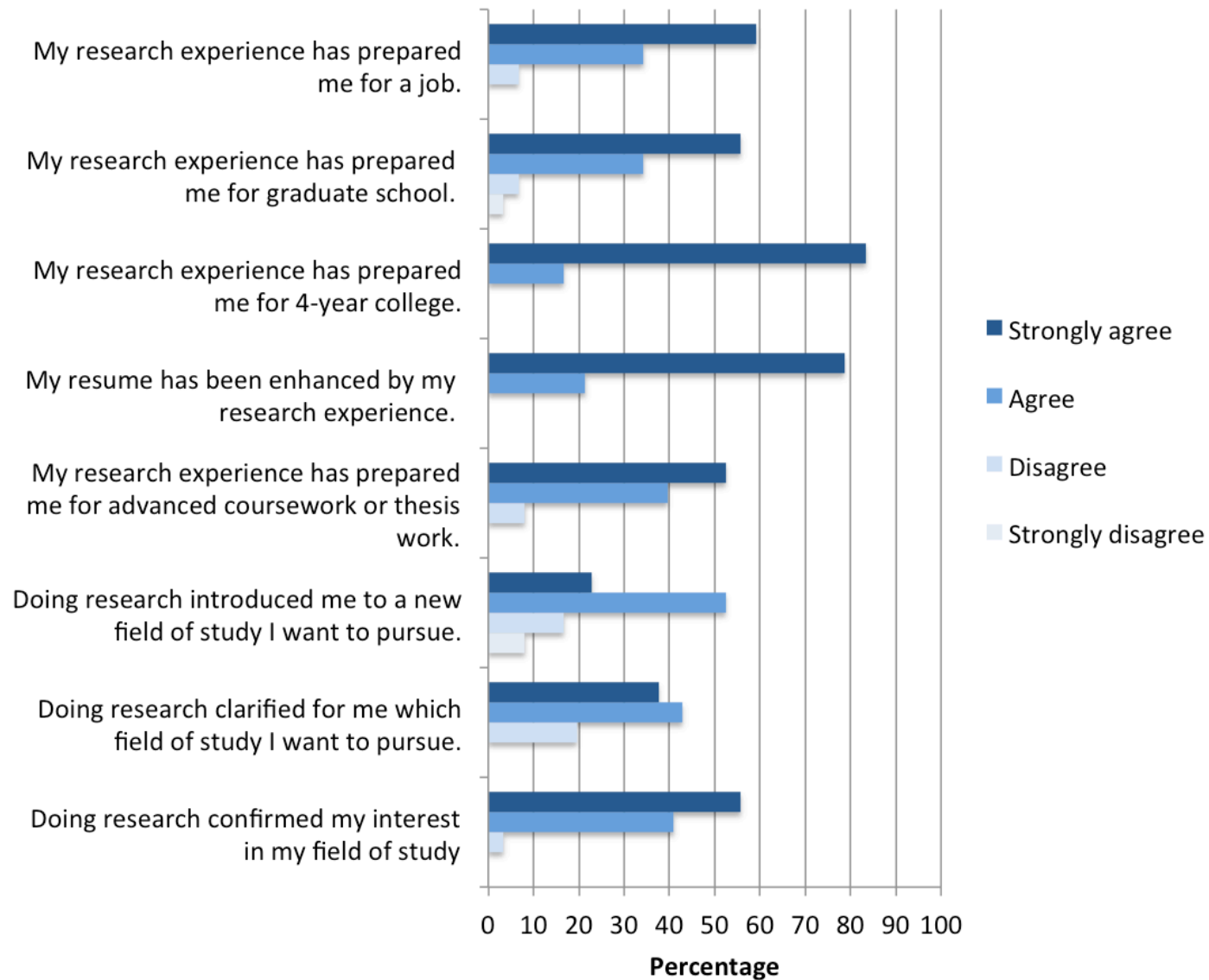
New in 2017 – Near Peer Mentors



Evaluation Results

- *All students successfully completed program.*
- *Students formed strong, supportive cohort.*
- *Self report: full immersion in scientific process, viewed themselves as scientists.*
- *Students highly motivated for STEM career at end program, including graduate school.*
- *Above average gains in cognitive skills and affective learning (Thinking and Working Like a Scientist, Personal Gains Related to Research Work, Skills, Attitudes and Behaviors as a Researcher, Satisfaction categories).*
- *Above average grit scores and confidence in success.*
- *~75% of mentors describe above or well above average student performance.*

Rate how much you agree with the following statements.



N=27
URSSA

Take Away



“RECCS has given me such an boost in self esteem, what I am capable of- I never knew because I had never tested myself. I owe you all such a debt of gratitude, I hope one day I can pay it back. Until then, please be well, and know that you changed the life of at least one person, for the better.”

More Information

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cires.colorado.edu/outreach/reccs

