

What is Geo-Launchpad (GLP)?

- A collaborative grant between Front Range Community College (FRCC) and UNAVCO funded by the National Science Foundation
- Includes the development of a summer internship program, careers course, and faculty mentor training

What are the goals of GLP?

- Build students' interest and capacity to engage in geoscience-focused STEM (science, technology, engineering, mathematics) career pathways
- Professional development of community college STEM faculty as mentors to students in geoscience-focused careers
- Increase the number of students from community colleges, particularly underrepresented groups, that transition to geoscience-focused careers

Why do we need GLP?

- Most of the educated workforce within Colorado received postsecondary credentials out of state (U.S. Census Bureau, 2015, The Colorado Education Initiative, 2015)
- By 2020,
 - 55% of professions requiring postsecondary credentials will be in STEM related fields (The Colorado Education Initiative, 2015)
 - 12.3% of STEM jobs will be held by associates degree holders (Carnevale et al., 2017)
- Hispanics and women are especially underrepresented in Colorado's current pipeline of students earning postsecondary credentials in STEM related fields
- Sixty-two percent of college and university graduates employed after graduation have participated in some form of internship (Bastedo et al., 2009)
- One half of community college students are first generation and unfamiliar with the concept of, and requirements for, transferring to a four-year institution or applying for an internship program (Gardner, 1996)

Front Range Community College (FRCC)

- Established in 1968
- Largest of the thirteen community colleges in the Colorado Community College System
- Largest source of transfer students to Colorado State University (CSU), University of Colorado Boulder (CU Boulder), and Metropolitan State University of Denver (MSU Denver)

UNAVCO

- Established in 1984 in Boulder, Colorado
- A non-profit university-governed consortium that facilitates geoscience research and education

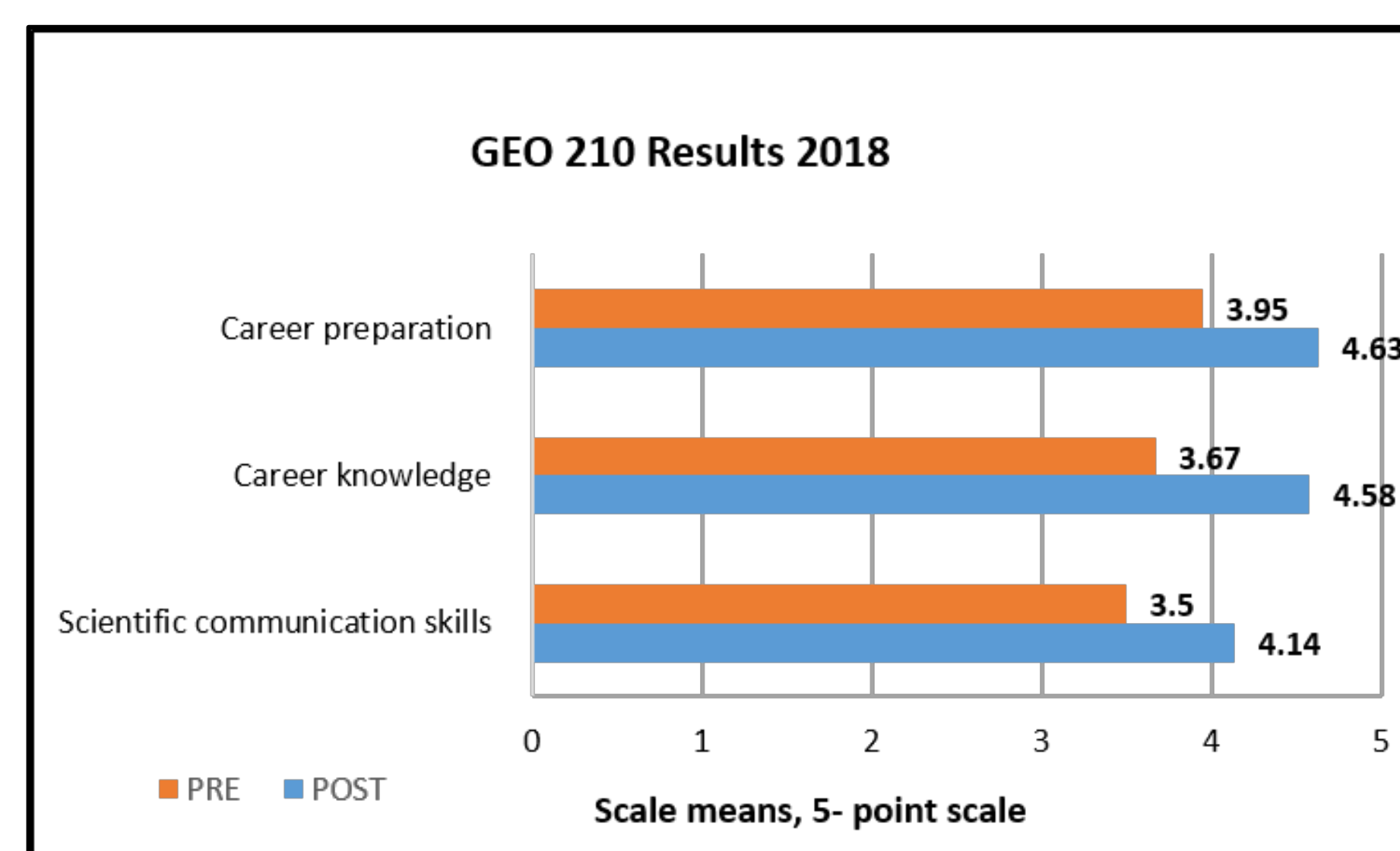
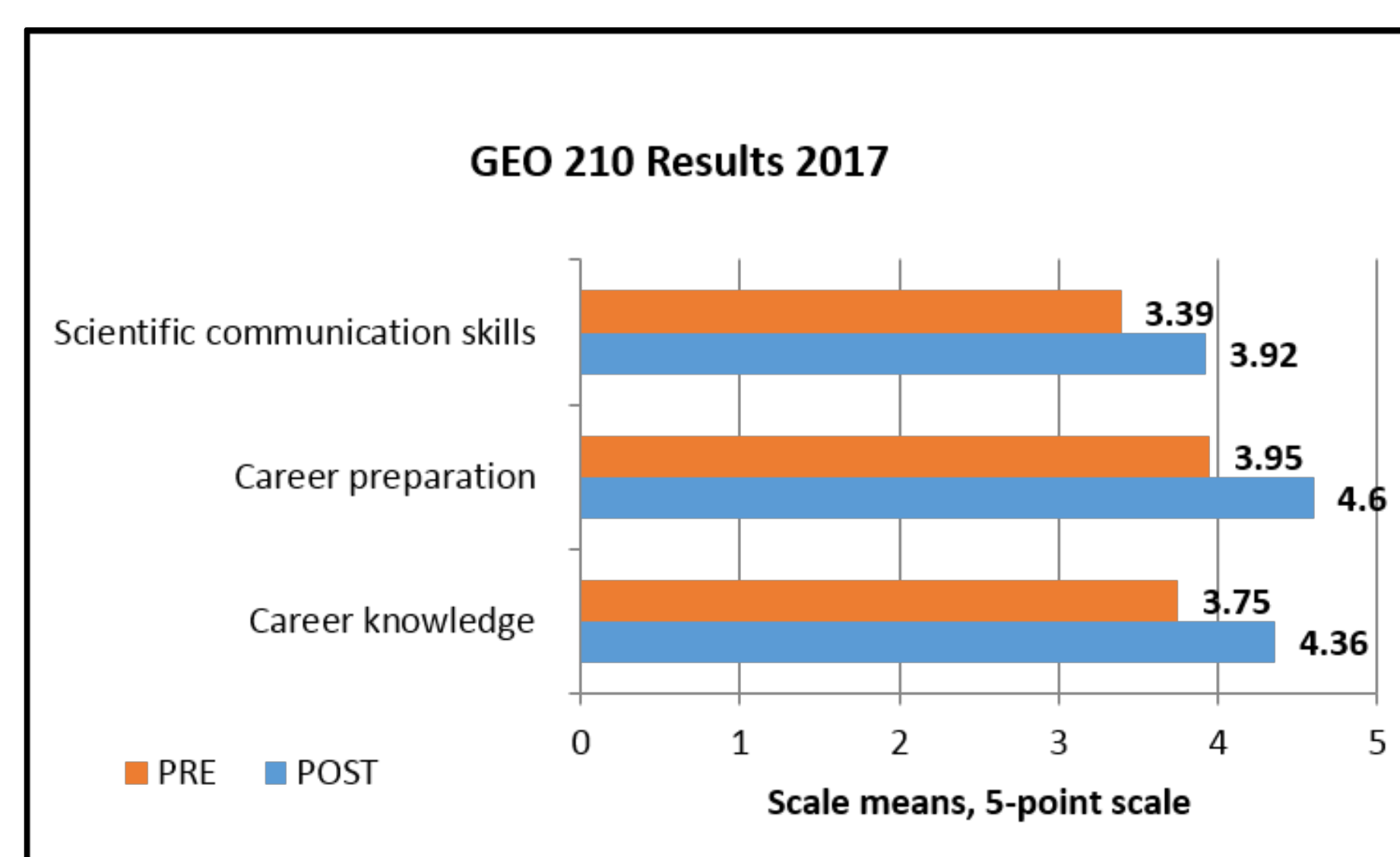
External Evaluation Methods

- Collected by Heather Thiry, Ph.D, Golden Evaluation & Policy Research using a modified version of the Undergraduate Research Student Self-Assessment (URSSA) instrument (Hunter et. al., 2009)
- Surveys administered to students at beginning and end of the course and internship; items rated on a 5-point Likert scale. Quantitative data organized in Microsoft Excel spreadsheets where statistics were computed
- Write in responses to open-ended survey questions and interview transcripts were entered into Nvivo qualitative analysis software

GEO 210: Careers/Research in the Geosciences

- Seminar style course on current research, tools, techniques, internship opportunities, professions, and transfer programs in the geosciences
- Develops writing and analysis of scientific papers
- Prepares resumes/curriculum vitae for internships or job opportunities
- Provides seminars and question sessions with previous geoscience interns and professionals in the field

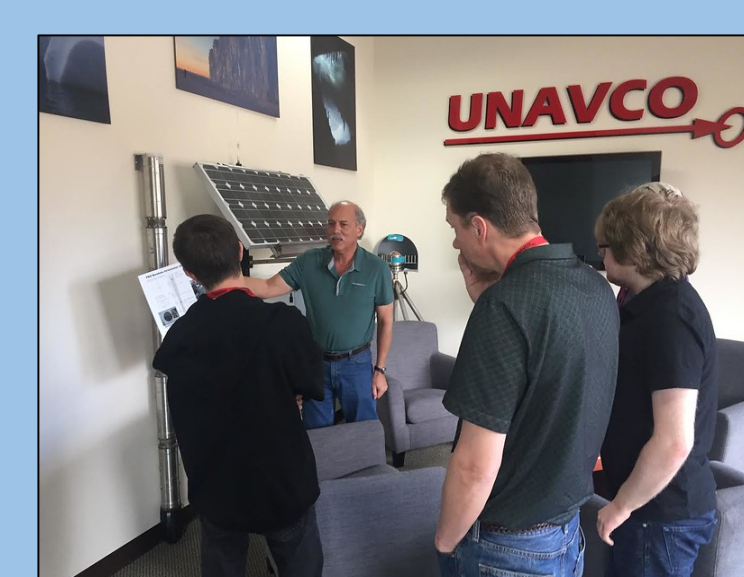
GEO 210 is now included in the Colorado Community College Common Course Numbering System. The course is available for adoption by community colleges throughout the state.



"It helped me narrow down the areas in which I want to work and opened up some pathways of knowledge about the Geosciences and potential career opportunities I am interested in pursuing. I also feel more confident going forward that I can write a better scientific paper than I have in the past." - GEO 210 student 2017

Where are the students now?

- Of the eighteen students participating in GEO 210, nine have applied to internships at both UNAVCO and other Research Experiences for Undergraduates (REUs) and six have received at least one offer for a summer internship
- Nearly all of the students from GEO 210 have transferred to four-year programs, most in related fields. Two are known to have continued on to graduate programs, and at least two others are currently employed in geoscience related fields (with AS degrees).

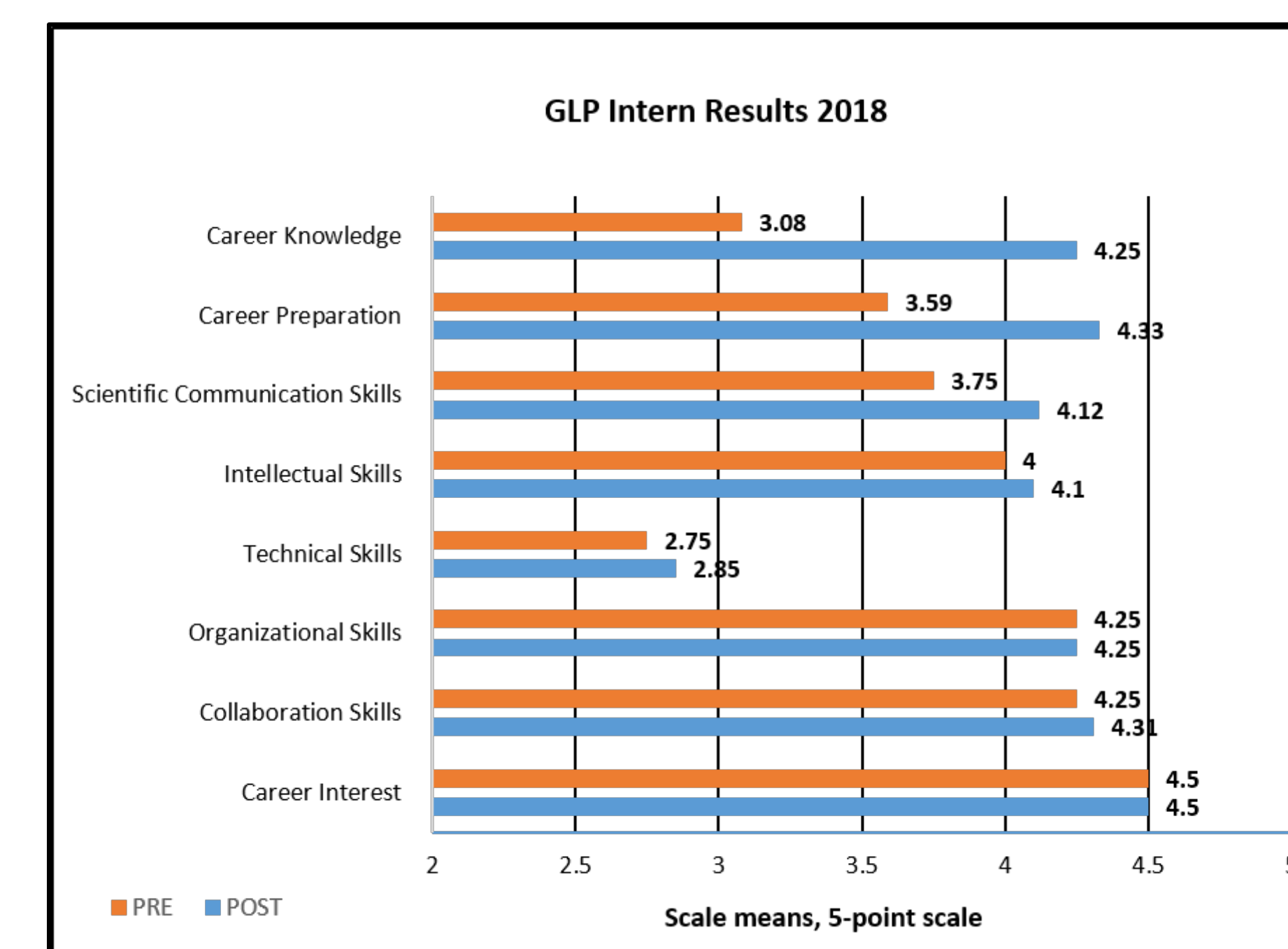
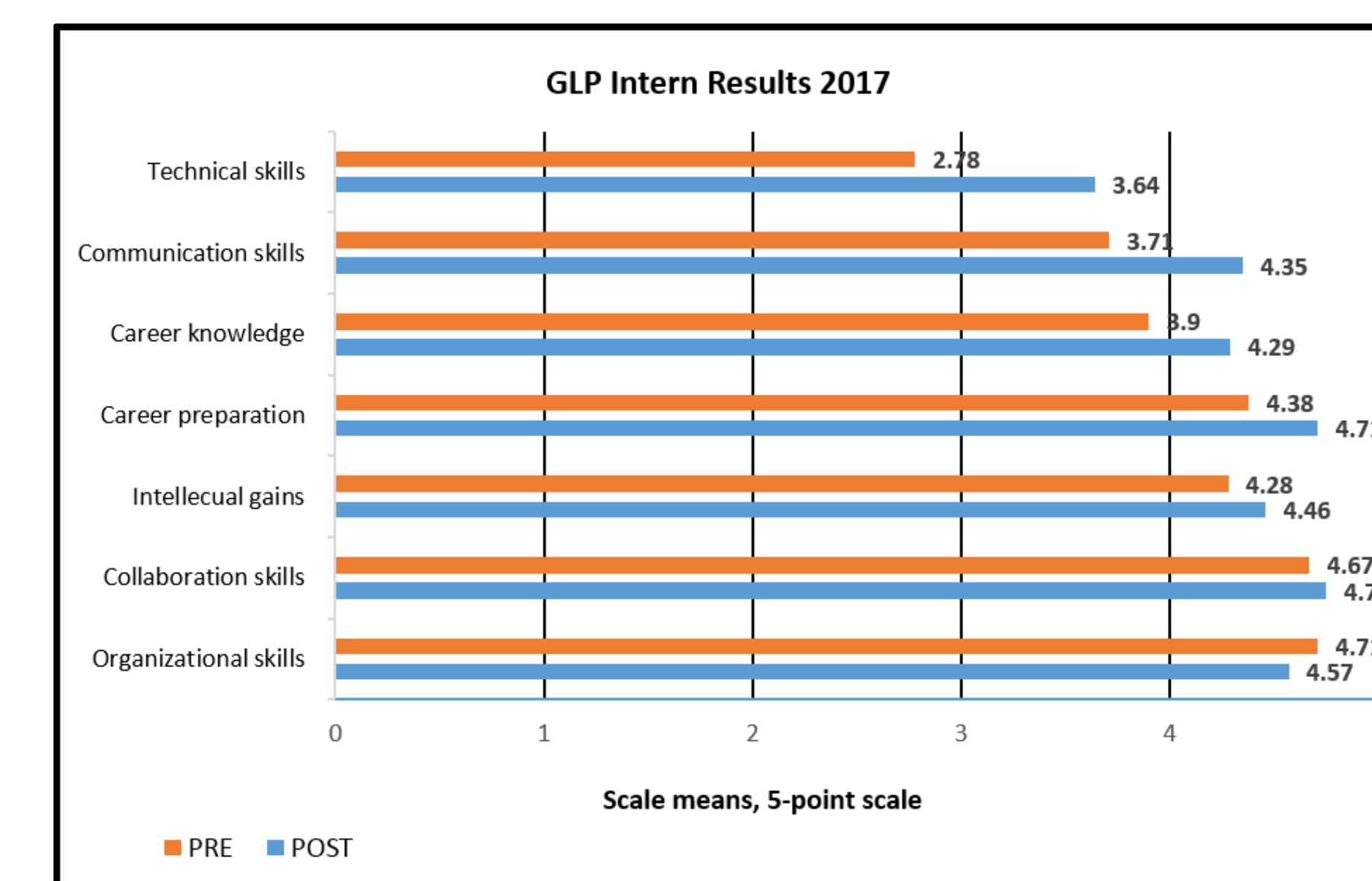
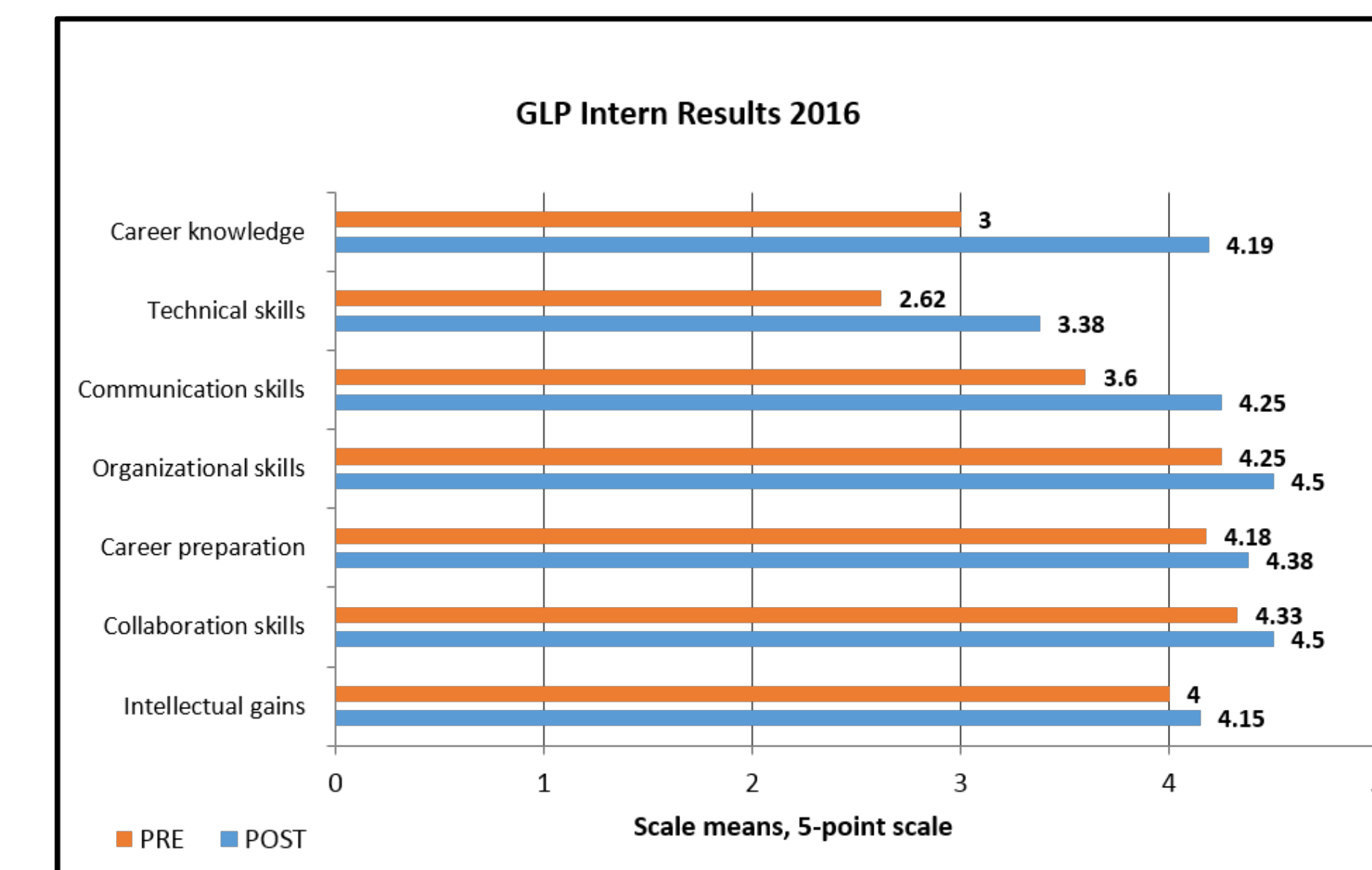


Left: Community college students from Front Range Community College Larimer Campus receive a tour from UNAVCO GDS Director Chuck Meertens.
Right: Geo-Launchpad interns Daniel Kelly and Jackson Galloway doing project work with Keith Van Cleave at the USGS.

Bottom right: Former GEO 210 student and 2018 intern Alex Hurtado (center) with 2019 interns Shannon O'Neill and Alex Cohen at the Geological Society of America 2019 Annual Meeting.

Internship at UNAVCO

- Originally eight-week, now an eleven-week paid internship through UNAVCO directly at facility, USGS in Lakewood, Colorado, or a private lab in Longmont, Colorado.
- Includes: team building workshops, a research support project dissemination, geology field trips to Rocky Mountain National Park and University of Colorado Mountain Research Station, communications seminars, geoscience career circles, skills workshops, faculty mentorship, and participation in a national professional conference.



"I think everyone at UNAVCO did a really great job with mentoring. It seems like they're very, very interested in cultivating a great batch of future scientists and they very much care about enhancing our knowledge as much as they possibly can." -GLP intern 2017

Mentorship

- Students received support from faculty mentors who were part of the formal mentoring aspect of the GLP internship and also from UNAVCO staff who provided informal day-to-day mentoring by supporting the interns in their scientific work
- Community college faculty members learned more about UNAVCO and its function within the geoscience community and gained a better understanding of the breadth of projects undertaken within UNAVCO and USGS

"The way they've built this internship, it's so supportive, and so the staff and then our mentors, and, it's just, it's really been a very supportive and wonderful environment." - GLP intern 2016

"That's actually good for me to develop my career, because that's one of my focuses is to mentor students out in these programs, getting them into careers. That's the end game. Any way I can develop as a mentor, I'm all in." -Faculty mentor 2017



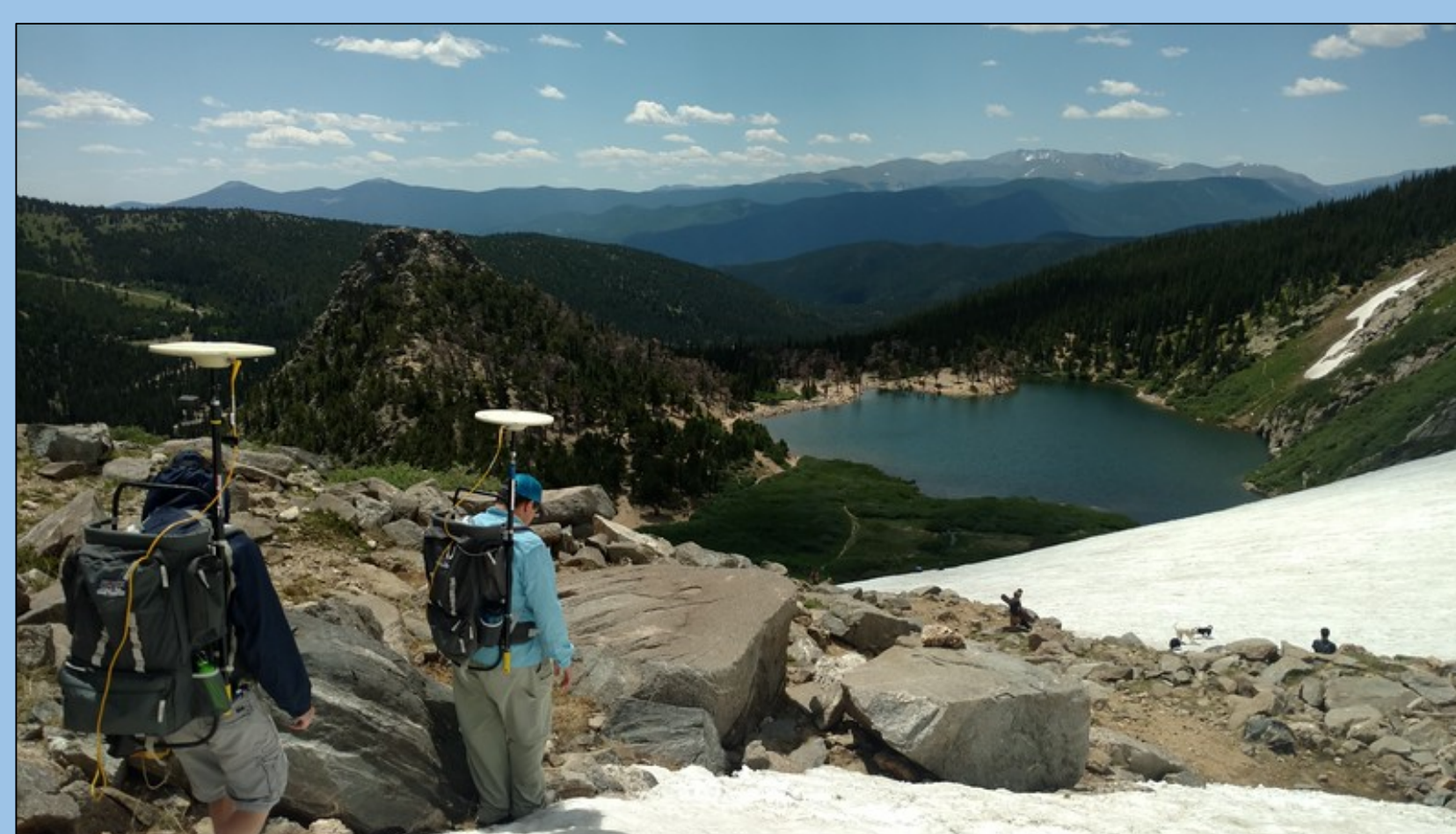
Above: Geo-Launchpad interns Beth Schaeffer and Brandon Lucas stand with their mentor at the 2017 summer poster presentation.

Conclusions

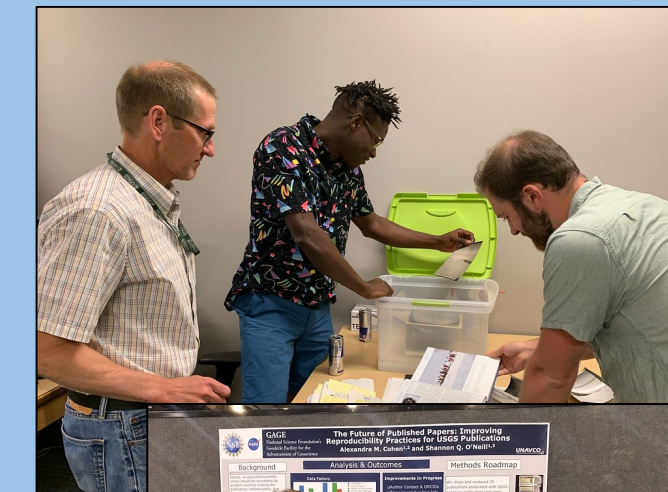
- The Geo-Launchpad internship succeeded in introducing interns to instrumentation within their field as well as strengthening a broad range of soft skills
- Geo-Launchpad proved to be a successful initiative, increasing students' career knowledge, career preparedness, and scientific communication skills within the geosciences. The most important survey outcome was the confidence students gained in pursuing and succeeding within the geoscience field

Next Steps

- Collaborate with other statewide colleges interested in adding the course to their curriculum
- Increase enrollment within FRCC in GEO 210
- Acceptance of four interns into the Geo-Launchpad internship program in Summer 2020



Above: Geo-Launchpad Polar Team went into the field to measure snowpack of the St. Mary's Glacier using two types of GPS: PPK and RTK.
Left: Laura Fakarhai performs leveling procedures on a GPS station.



Bottom right: Former GEO 210 student and 2018 intern Alex Hurtado (center) with 2019 interns Shannon O'Neill and Alex Cohen at the Geological Society of America 2019 Annual Meeting.



Left: Intern group photos 2015-2018
Below: 2019 Geo-Launchpad interns.

