189-4 Two-Tiered Mentoring of Two Year College Students During a Summer Research Experience Program at the University of Texas at El Paso



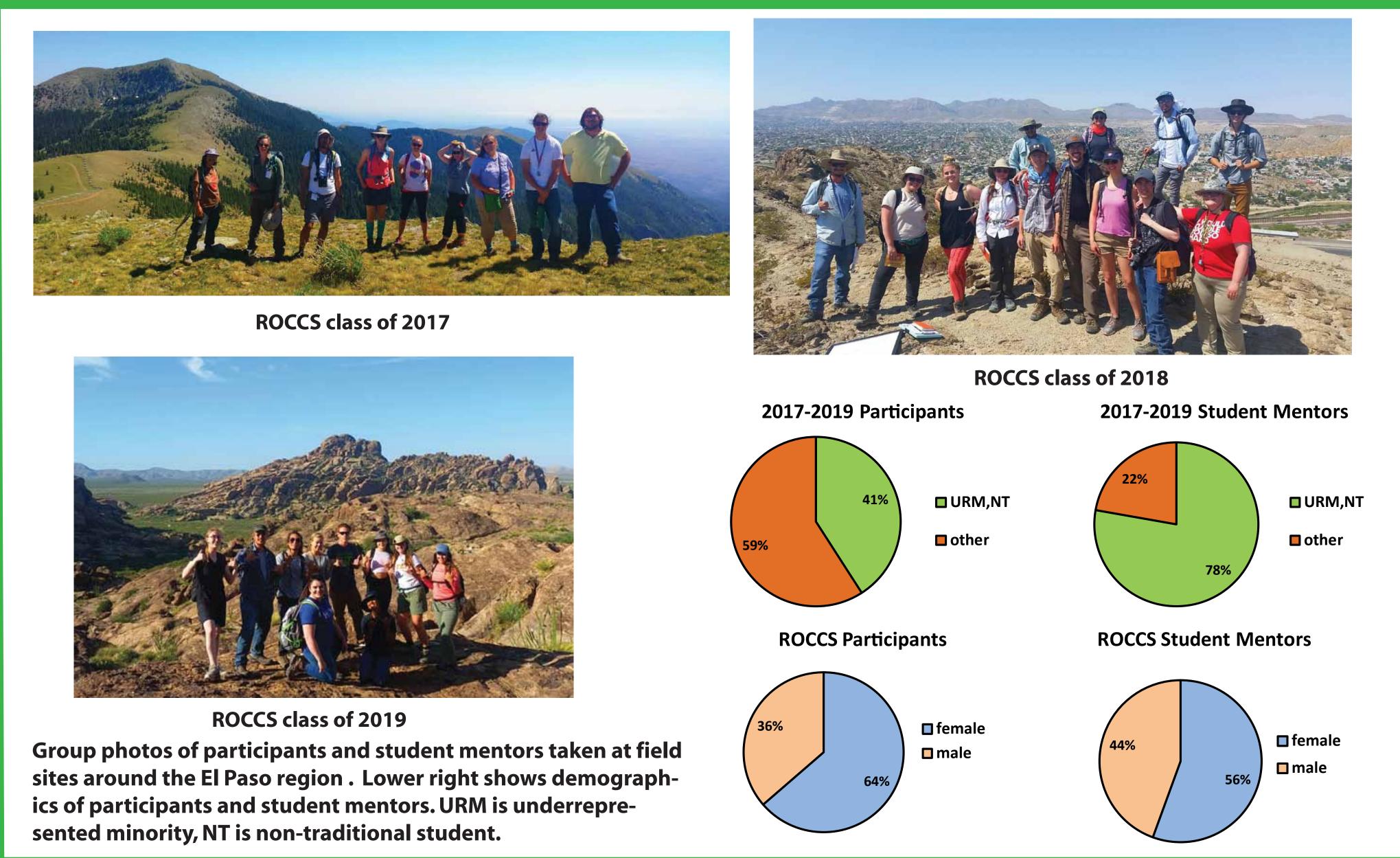




Diane I. Doser* (doser@utep.edu), Robert Rohrbaugh&, Arturo Olivarez+, Joshua Vilallobos&
*Dept. Geol. Sciences, University of Texas at El Paso, +Educational Leadership and
Foundations, University of Texas at El Paso, &Dept. Geol. Sciences, El Paso Community College

ABSTRACT

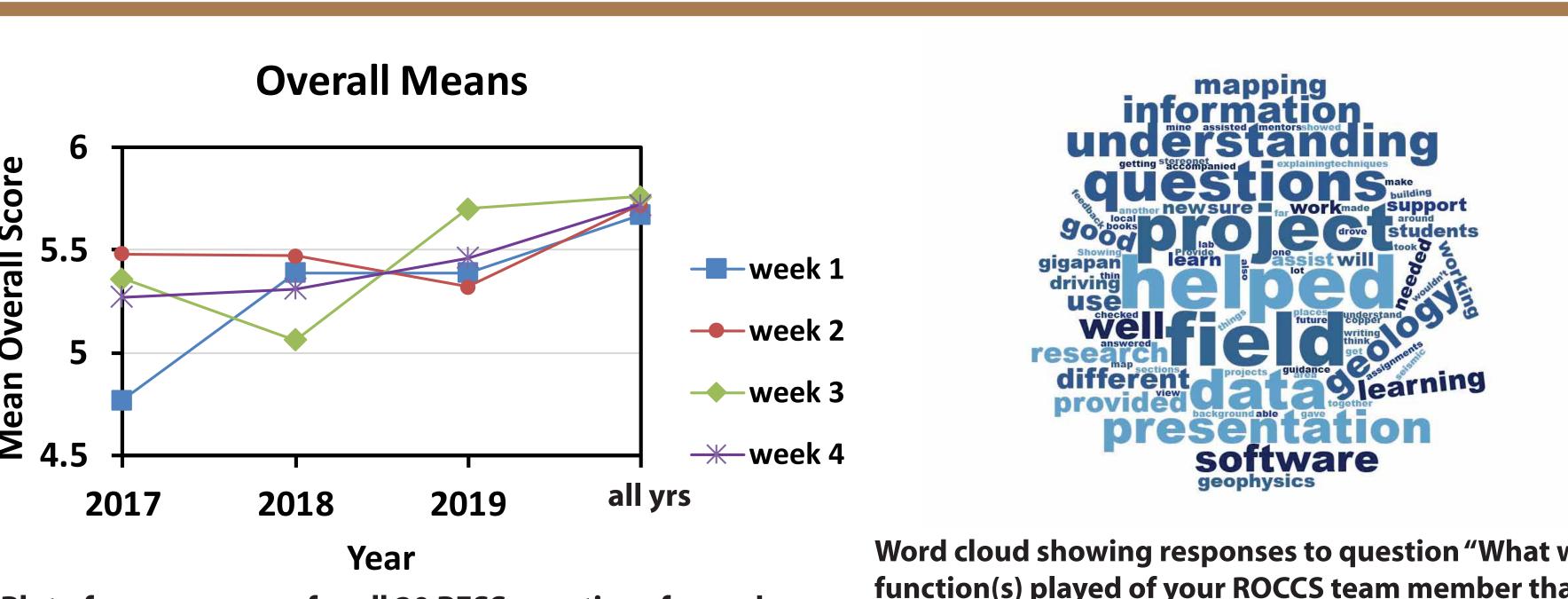
UTEP-ROCCS (University of Texas at El Paso-Research Opportunities for Community College Students) is an NSF supported summer research experience for undergraduates (REU) designed exclusively for two-year college students from across the United States that has been conducted the past 3 summers (2017-2019). Unlike many other summer REU's, the participants are only in El Paso during the month of June to begin their research projects, with subsequent research carried out at their home institutions in July through intensive virtual mentoring. The mentoring team for the program is a unique mix of two-year and four-year college faculty and undergraduate juniors and seniors. Over the 3 year period we have hosted 22 two-year college participants supported by 6 UTEP undergraduate mentors, 2 undergraduate mentors who had been participants in previous years' cohorts and 9 faculty mentors from UTEP and El Paso Community College (EPCC). Surveys conducted during the first two years of the program showed that 96% of the time the participants felt the faculty and student mentors were supportive, encouraging, and able to respond to their questions and concerns. Ninety two percent felt they received constructive, useful critiques of their field and research work, were motivated by the mentors to learn more and were challenged to extend their abilities and skills for the success of their research projects. Over 94% of the time they felt the experience stimulated their interest in geology as a future career. Twelve respondents (an 86% response rate) to a follow-up survey of the 2017 and 2018 cohorts indicated 11 were now attending a four-year institution to complete a BS degree in the geosciences and one was obtaining additional training within a GIS certificate program.



Evaluation of Participants' Experiences Mentoring Structure Project Effectiveness and Support Scale (PESS) Internal evaluator Olivarez developed the ROCCS PESS, composed of 20 Likert-type questions (with a scale of **Faculty Mentors** 1=lowest to 6=highest) and 6 open-ended questions to measure the attitudes and opinions of the ROCCS participants throughout their 4 week experience. Copies of the PESS are found at the bottom of this poster. (UTEP, EPCC, home Undergraduate institutions), **PESS Results PESS Results Student Mentors** graduate students, UTEP staff 6 | III TI ITI ITI ITI ITI ITI ITI Internal **Participants Evaluator** question number **2017 2018 2019 2017 2018 2019** Map of mentoring structure. Faculty mentors included professors from UTEP, EPCC, and

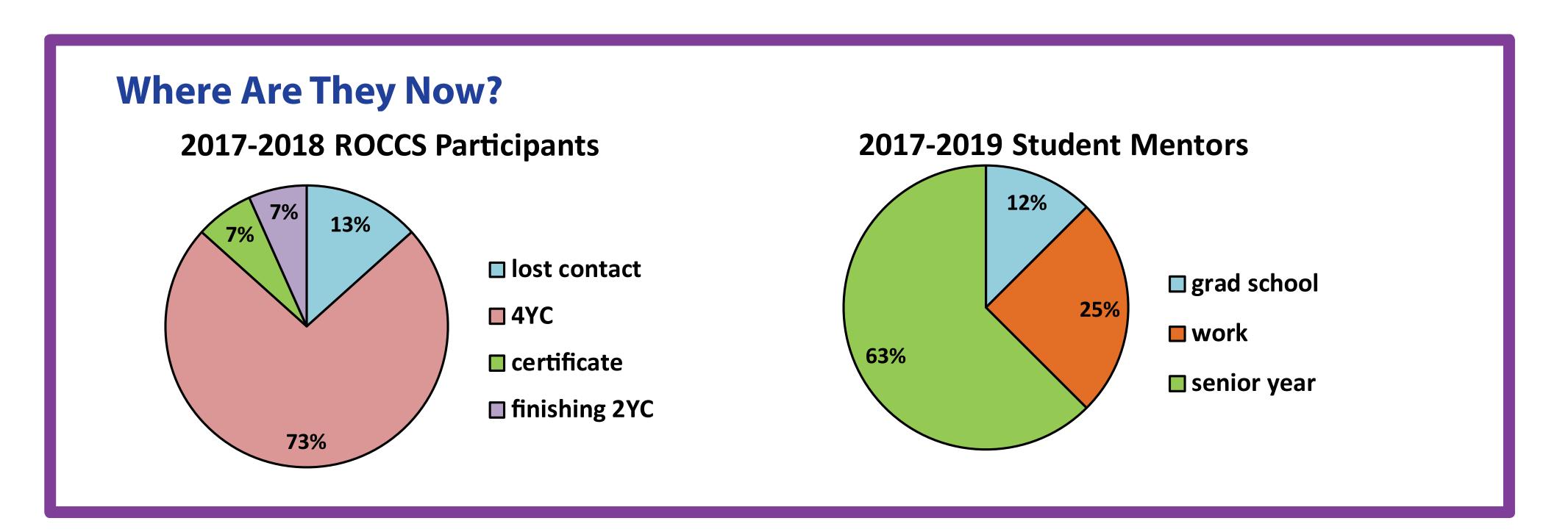
Map of mentoring structure. Faculty mentors included professors from UTEP, EPCC, and the participants' home institutions. UTEP graduate students assisted with training students in laboratory analyses and operation of geophysical equipment. UTEP staff assisted with field and laboratory training and computer analyses. Undergraduate student mentors included UTEP students and students who were participants in previous cohorts. See poster 189-5 (this session) that describes the student mentors' experiences. Dr. Arturo Olivarez served as the internal evaluator, administering weekly surveys during the 4 weeks participants were present at UTEP, as well as several follow up surveys once participants returned to their home institutions.

Means and standard deviations for the 20 question PESS survey for 2017-2018 (above). Responses to questions 1, 4 and 5 (related to how accessibile, and approachable the participants felt their mentors were) showed means within the top 25% of all questions for all 3 years, whereas responses to questions 14, 17, and 19 (related to the role mentors had keeping them focused, the value of tours and other events, and the value of lab experiences) consistently had means within the lowest 25% of all questions. Lower means for several of these questions reflect the fact that few participants had research projects that involved laboratory analyses. Many participants also felt they needed more time at end of June to complete work related to their project and did not value other activities that took time away from work directly related to their project.



Plot of average mean for all 20 PESS questions for each week of the June experience. Note how the mean generally rises with each week as the mentors become more effective at helping the participants.

Word cloud showing responses to question "What was the function(s) played of your ROCCS team member that you have interacted with, thus far?" for 2018 cohort. Names of individual mentors have been removed as well as words only mentioned once. The word "helped" was mentioned 46 times and the smallest words were mentioned 2 times.



OTHER IMPACTS:

Participant Presentations:

All students are required to present at the AGU's virtual poster session (VPS). One participant won third place for her 2018 VPS presentation. Fifteen participants have presented posters at GSA meetings (2017-2019) and 4 have presented at AGU meetings.

Student Mentors:

See poster this session (189-5) for the student mentors' summaries of how ROCCS has impacted them

Faculty:

New field sites (for teaching and research)

New research projects for graduate students and other undergraduates Exposure to new software

Enhances teaching methods

LESSONS LEARNED:

Two participants per student mentor was best ratio

Significant time investment, for student mentors staying in campus housing it was a 24/7 job, for other student mentors and Rohrbaugh it was a 12+hrs/day, 7 days/week experience

Logistical support required 2-3 hrs/day

Acknowledgements

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