

Fostering a STEM Identity & Belonging within a Cohort-Based Program

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Shannen Allado serves as the Senior Coordinator for the STEM Success Network—working as a team member for the Maximizing Engineering Potential (MEP) and Women in Science and Engineering (WiSE) office in the College of Engineering. Her work at Cal Poly Pomona supports university-wide STEM success efforts as they relate to the outreach, recruitment, retention, graduation, and academic recognition of students. In alignment with Graduation Initiative goals, she focuses on reducing the equity and opportunity gap for under-represented students, with particular emphasis on women, gendered minorities, first-generation, and low-income students in STEM. Shannen is currently pursuing her doctorates in Educational Leadership and earned a M.S. in Higher Education and B.A. in Public Health Policy (with Minors in Asian American Studies and Educational Studies).

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Maximizing Engineering Potential & Women in Science and Engineering

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About MEP-WiSE

The **Maximizing Engineering Potential (MEP)** program at Cal Poly Pomona has been active in increasing the number and diversity of students graduating in technical disciplines since 1983. In 2022, the **Women in Science and Engineering (WiSE)** program was added under the Center for Gender, Diversity & Student Excellence to jointly support engineering and science students under a new umbrella program, aptly re-named MEP-WiSE.

As a retention and academic enrichment program, MEP-WiSE partners with current cohort students to build a strong community of support through their academic journey. The objective of this poster is to share the success and lessons learned in developing and fostering a STEM identity and belonging within a cohort-based program and learning community through "Engineering In Your Future." The preliminary data will provide educator-practitioners a guide on how cohort-based programs can support students by helping to foster a STEM identity and sense of belonging within a cohort-based learning community.



Mission Statement

Through MEP-WiSE, the Center for Gender, Diversity & Student Excellence prepares historically under-represented minority, women, low-income, and first-generation engineering students to become professionals and leaders capable of tackling life-long, intellectual, socio-ethical, and career challenges in a changing world.

Vision Statement

MEP-WiSE aspires to be a premier center of excellence for preparing diverse communities of student learners for academic, professional, and leadership opportunities in a global society.



Program Description

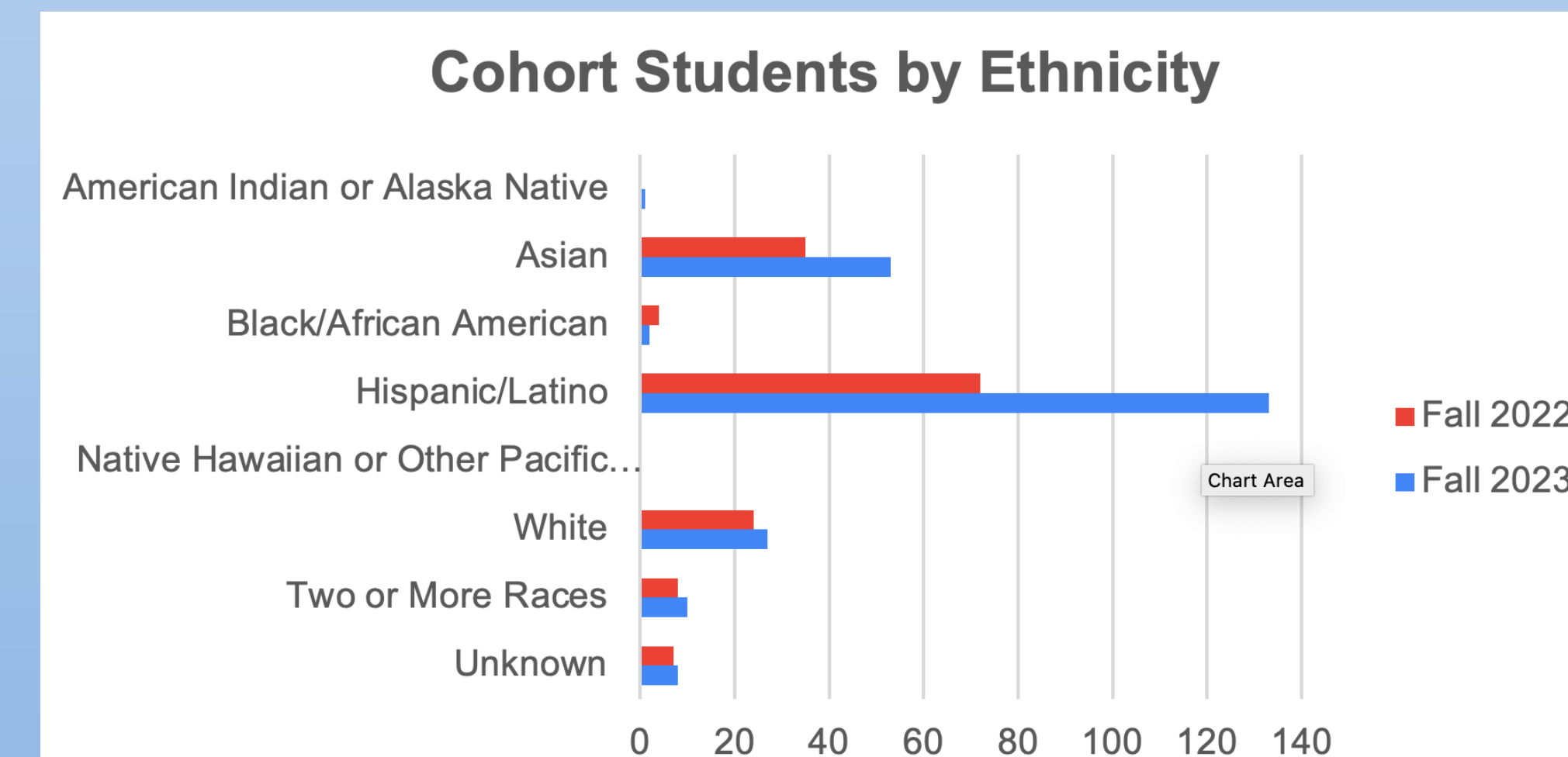
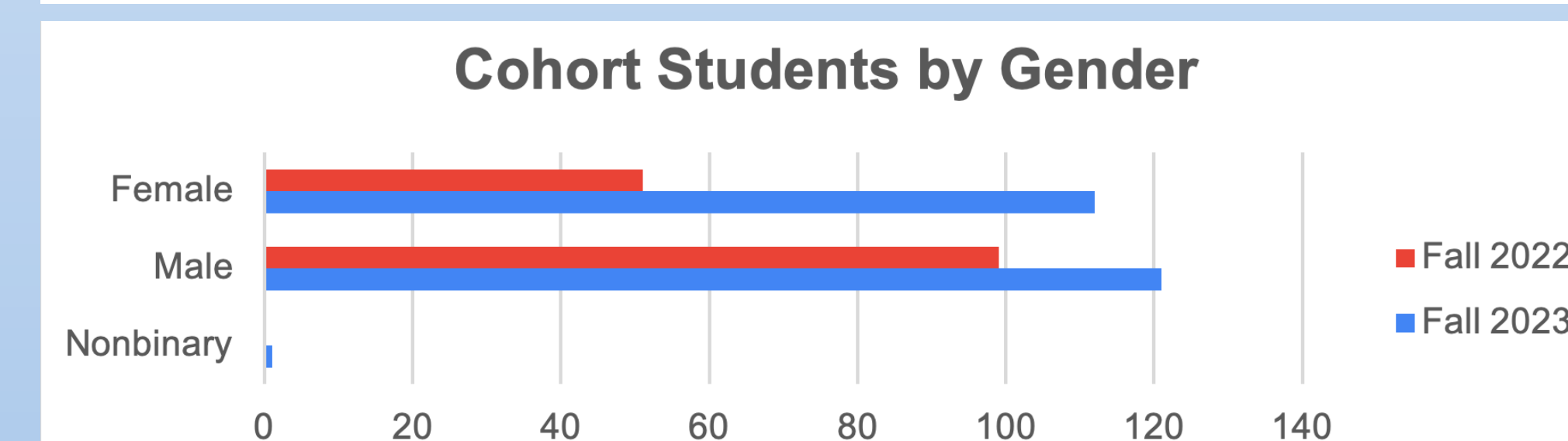
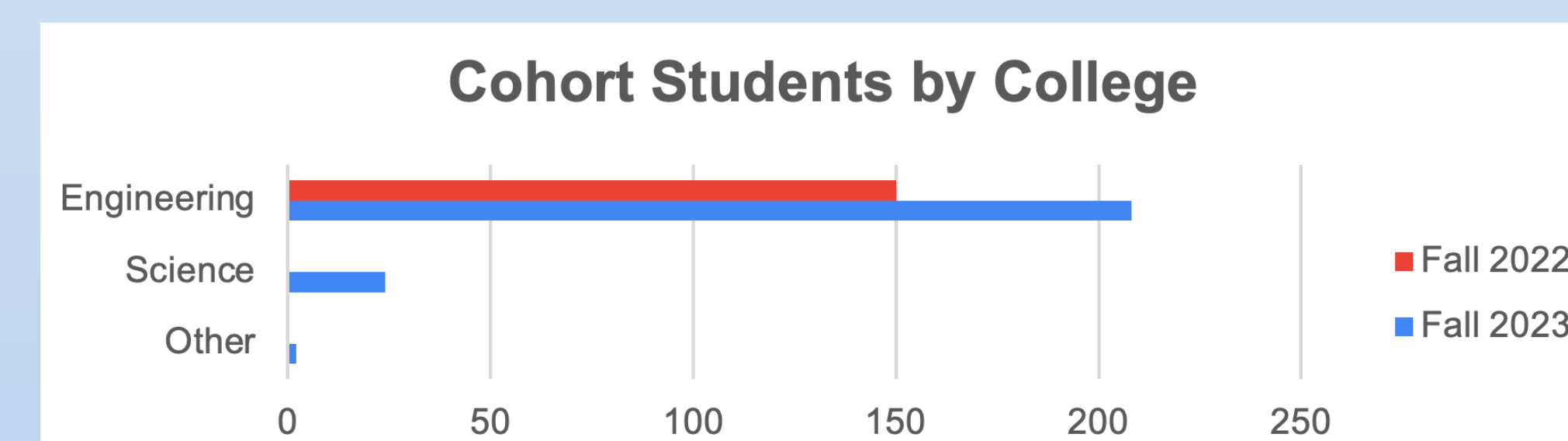
The MEP-WiSE program invites newly admitted first-time students and transfer students to apply in the Spring. In early summer, students admitted into the program are invited to attend the Pre-Orientation Event and prepare for the University Orientation. The students then return for "Engineering In Your Future," or EIYF, which is a 3-day residential summer program. The program focuses on community building, career exploration, and academic preparation within the student cohort. It serves to guide students' expectations as they complete their transition from high school or community college and embark on their college experience in creating a STEM identity and belonging within the college.



Student Demographics

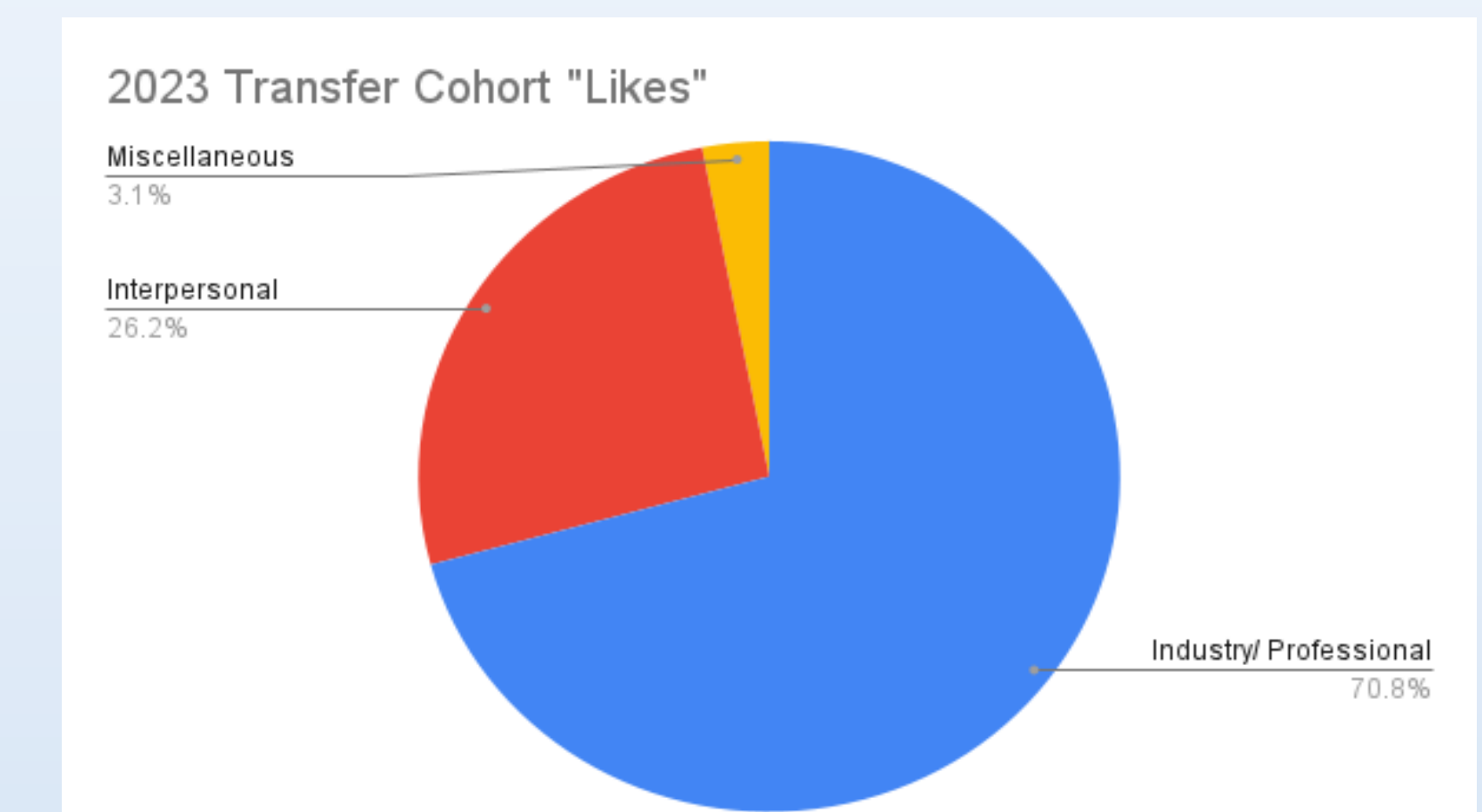
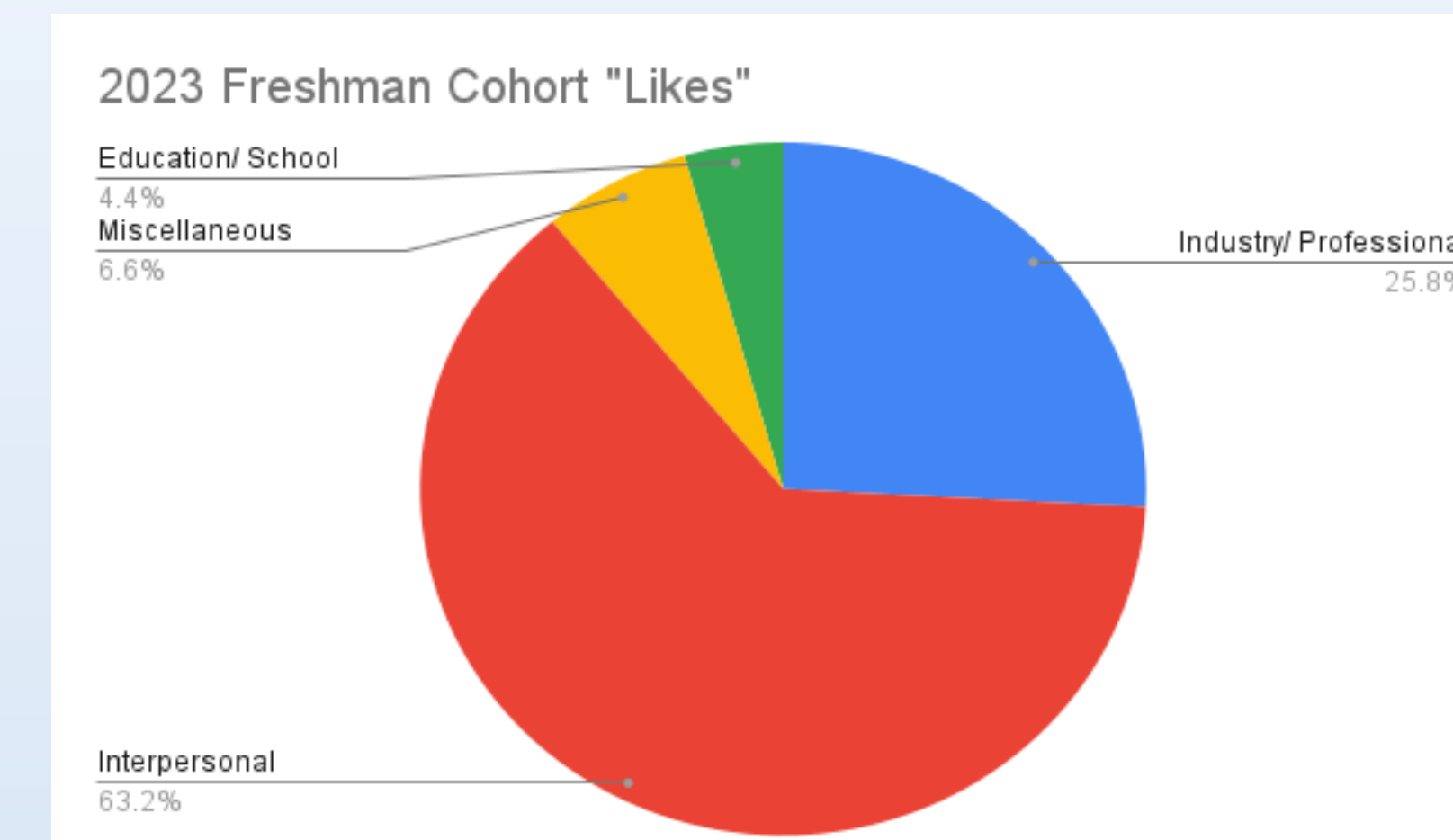
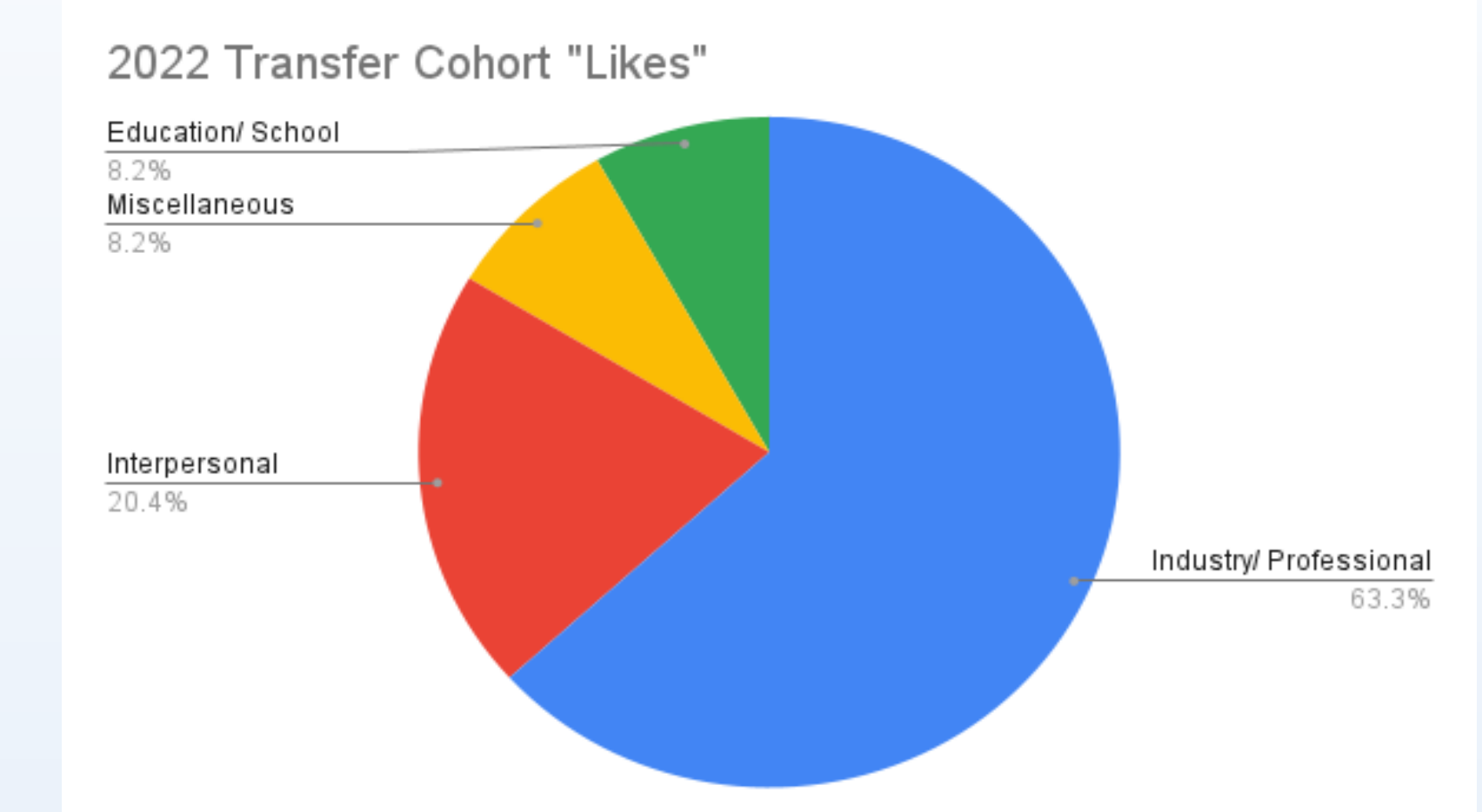
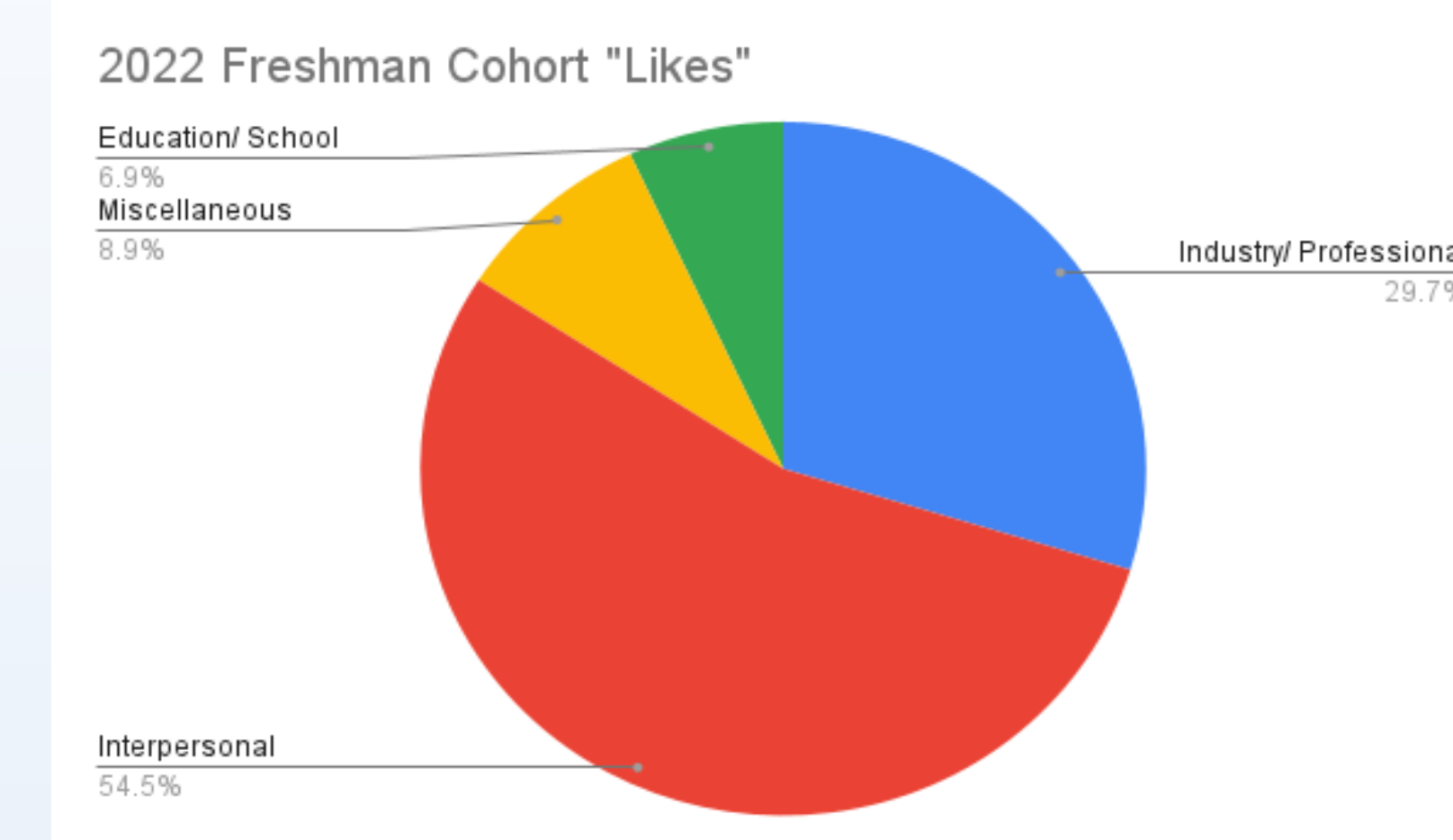
Each year, MEP-WiSE aims to grow its cohort of students and scale the program to serve the STEM Success Network across three colleges: Engineering, Science, and Agriculture. The goal of the STEM Success Network is to connect STEM students in the interdisciplinary practices of the industry.

The **Fall 2022 MEP-WiSE cohort** welcomed 150 students: 76 first-time students and 74 transfer students. The **Fall 2023 MEP-WiSE cohort** welcomed 234 students: 150 first-time students and 84 transfer students. Majority of students in both cohorts are first-generation (i.e., first in the family to attend college), historically underrepresented minorities, and/or from low-income communities.



The Student Voice

Survey responses reveal insights into student growth and developments in a STEM identity and sense of belonging facilitated by MEP-WiSE. Across both cohorts, an emphasis on interpersonal connections and industry/professional development emerges as a cornerstone of student satisfaction through the EIYF event.



Among first-time students, the survey data indicates a significant preference for meaningful peer connections. Sharing what they liked most about EIYF, in 2022, 54.5% of respondents highlighted this aspect, which increased slightly to 63.2% in 2023. Students shared the value of interpersonal connections and requested more time to connect with peers. Following closely behind, 29.7% and 25.8% of students in 2022 and 2023, respectively, expressed appreciation for the industry and professional development opportunities. This trend reflects the program's success in nurturing a supportive community where students can thrive academically and socially.

Transfer students place more value on industry and professional development with 63.3% in 2022 and 70.8% in 2023. Interpersonal connections were still of value at 20.4% in 2022 and 26.2% in 2023. The preliminary data illustrates the shift in interest to industry and professional development for transfer students. Although EIYF is tailored to address these distinctions through separate cohort programs, it is important to note that the needs of transfer students diverge from those of first-time students. Both interpersonal connections and industry/professional development are of value for first-time students and transfer students.

Conclusion

A cohort-based program provides a strong foundation for students to create a strong STEM identity while they build a community of belonging, learning, and support. Creating and fostering a community the summer before students begin their first semester has shown lasting impacts on student persistence and retention.

First-time students benefit from semi-structured activities that build on interpersonal connections. Transfer students gain meaningful interactions with industry professionals. While these distinctions are addressed in EIYF, there remains potential for MEP-WiSE to further refine its summer program to meet the unique needs of every student.

MEP-WiSE will continue to find opportunities to scale up the EIYF program every summer and follow cohort students through their academic journey at Cal Poly Pomona.



Acknowledgements

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