

Women and Minorities in Engineering Research Mentorship Program

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Project Description

This project is part of a larger endeavor on the part of the Department of Electrical and Computer Engineering to increase the number of women and minority engineers and was funded as a Hemmingway Collaborative Grant. Studies have shown that participation in undergraduate research and a sense of belonging are two of the strongest indicators of minority retention in engineering. The goal of this program is to provide mentorship and research opportunities to minority students, study the causes of attrition in engineering, and study the efficacy of the program. We are leveraging the expertise of Dr. O'Hare to organize a long-term study on the outcomes of the program. Those outcomes will be made available in a future publication.

Program Plan and Status

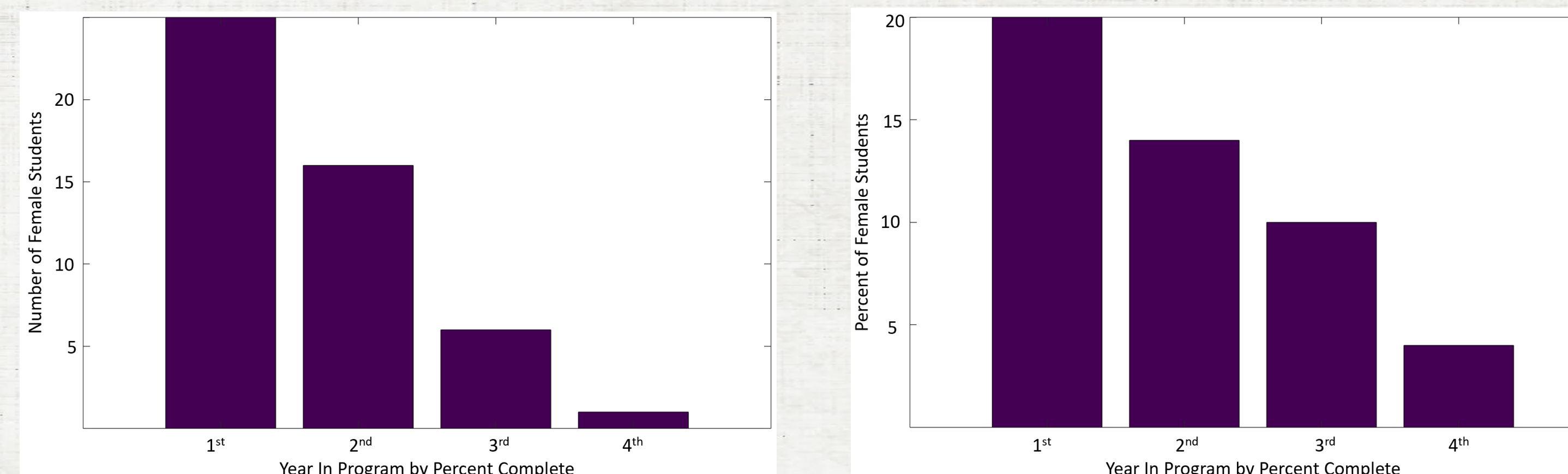
Program Plan

- Mentors choose a faculty member to work under and are assigned a project by that faculty member
- Mentors are trained directly by the faculty in research methods, necessary equipment, and mentorship skills
- Mentors then generate training materials and serve as mentors for the next group of minority engineers

Status

- We currently have 6 student mentors in training on various projects, and there are more students interested in the program than we can currently accommodate
- Dr. O'Hare will start collecting survey data in Fall 2023
- We have retained all students that have joined as mentors
- \$2,500 in scholarship money and >\$5k in equipment has been donated from industry to help sponsor more students. The scholarship is expected to be an ongoing contribution
- Hill Air Force Base has expressed interest in helping grow the program and negotiations for financial support or on-campus sponsored internships are ongoing

Women in the ECE Department



These two plots show the number [left] and the percent [right] of women in engineering in the ECE department by year as defined by percentage complete, with 1st years being defined as 1% to 24% complete, 2nd year being 25% to 49%, etc. Declared majors with no courses completed towards the degree are not counted because a high percentage of students drop out before completing the math prerequisites for the major.



Our first group of student mentors learning new equipment and mentoring other students on relevant usage and research methods

Conclusions

Early indicators are that we are succeeding in recruiting an increasing number and percentage of female and minority students into the ECE department. However, it also appears that the retention rates are significantly lower, indicating the importance of this project. Now that we have the first group of mentors trained and generating support material, we are preparing to enter the data collection phase to generate results and prepare a publication.

We will not be able to report on the total effectiveness of the program for 2 more years because that's when we will see our first cohort of mentors and mentees entering their senior year, allowing for a complete analysis of male/female and minority/non-minority retention rates.

We have started securing outside funding and additional funding from the college to ensure the program is sustainable. Preliminary results will be used to seek additional external grants.

Industry Partner/ Acknowledgments

- Hemmingway Faculty Development Trust
- Xilinx University Donation Program
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