



THE ENGINEERING TALENT PIPELINE

Enhancing the Pathway to Academic Success

The UW-Madison College of Engineering is dedicated to providing educational access and opportunity to all segments of society. Our outreach efforts inspire and prepare young people, including students from underserved populations, to succeed in science and engineering. These programs benefit all students, since the success of future engineers will depend upon their ability to work with and learn from diverse people and cultures.

FOCUSING ON WHAT WORKS

The UW-Madison College of Engineering (COE) uses several proven strategies to increase diverse student participation in science, technology, engineering and math (STEM) fields. The focus is on programs that reach students during influential academic and career decision points, including:

- Middle school grades (particularly 8th grade), when exposure to career opportunities in STEM fields awakens an awareness of the importance of math and science;
- The junior and senior years of high school, when university experiential programs for students interested in STEM fields improve college readiness;
- The first two years of an undergraduate program, when intensive curriculum requirements and financial stresses can hurt student retention; and
- The senior year of an undergraduate program, when talented students contemplating graduate school need options for financial support.



Potential future engineers check out the Māquina fountain/sculpture during a College of Engineering open house.

COE OUTREACH & DIVERSITY PRIORITIES

The U.S. Bureau of Labor Statistics reports that more than half of the 30 fastest-growing occupations (many of those in engineering) projected through 2018 will require significant math or science preparation. In order to meet growing demand for engineers, outreach programs need to inspire more students at earlier ages, and reach populations that traditionally have not pursued STEM-related fields. Here are four COE programs making an impact:

- **Camp Badger.** In its 11th year, this series of five weeklong summer camps serves students entering 8th grade in the fall and emphasizes enrollment of girls and underrepresented students (typically about 35 percent and 25 percent of all participants, respectively). It has steadily grown in popularity and in 2010 served more than 180 students. Camp Badger answers the question, "What do engineers do?" through hands-on exercises, company tours, work in high-tech labs and team-building projects.
- **Engineering Summer Program (ESP).** The oldest summer camp at UW-Madison, ESP provides 26 junior and senior high school students a six-week immersion experience in both the scientific rigor and the hands-on nature of engineering. The camp culminates in students applying their math, physics and chemistry instruction to an engineering design challenge. The program partners closely with schools in Milwaukee and Racine-Kenosha to achieve a diverse enrollment, including ethnic minorities, women, first-generation college students and students from economically disadvantaged families.
- **Undergraduate Diversity Scholarships.** The college needs more scholarship support for underrepresented students, especially those from our partner high schools. A diversity scholars program provides a direct avenue for companies and individuals to support COE students, enhance retention and graduation success rates, and build a more diverse engineering workforce.
- **Graduate Engineering Research Scholars (GERS).** Established in 1999, GERS is increasing the number of underrepresented minority students receiving graduate degrees in engineering and entering the professoriate. The program has a national reputation for success. Since the fall of 2000, 76 GERS students have graduated, including 45 with master's degrees and 31 with doctorates. GERS builds a sense of community through an organized structure for peer-to-peer mentoring, professional development and faculty interaction.

OPPORTUNITIES TO SUPPORT COLLEGE OF ENGINEERING OUTREACH

- Student demand for Camp Badger has grown dramatically, and the College of Engineering is committed to offering tuition support to defray the costs of roughly \$750 per student for a weeklong camp. Anchor donations of \$5,000 or more make a big difference toward keeping the program accessible to all families and expanding the program to meet growing demand.
- Engineering Summer Program (ESP) relies heavily on corporate sponsors to defray costs of the six-week residential program, which is approximately \$6,000 per student. Companies may provide general funding to support program expenses or targeted tuition for students from priority schools in their home community.
- Diversity scholarships are a great way to reward talented high school students who have prepared to succeed as engineers, while nurturing them through the challenging undergraduate experience. Full-time, in-state tuition is approximately \$9,000 per year.
- Supporting diversity in graduate programs is critical to bringing more women and minorities into the U.S. university faculty ranks, and providing talent for complex jobs that require advanced degrees. Donor support of Graduate Engineering Research Scholars may include one-year or two-year graduate fellowships to supplement student research work. A typical fellowship is in the range of \$15,000 per year.



“This scholarship allows me to build close relationships with professionals who will help me with references, recommendations, future scholarships, and jobs that I wouldn’t have had so early on in my undergraduate career.”

— Benedetta Cannestra, sophomore in chemical and biological engineering and Rockwell Automation Diversity Scholar

FOR MORE INFORMATION

Ann Leahy

Managing Senior Director of Development,
College of Engineering
UW Foundation
608-265-6114 or ann.leahy@supportuw.org

or

Brian Mattmiller

Assistant Dean for Alumni and Corporate Relations,
College of Engineering
UW-Madison
608-890-3004 or bsmattmi@engr.wisc.edu



A local high school student tinkers with a Rube Goldberg Machine at the biennial Engineering EXPO.