

# COLLEGE OF ENGINEERING

## ACADEMIC DEPARTMENTS

- William E. Boeing Department of Aeronautics & Astronautics
- Bioengineering
- Chemical Engineering
- Civil & Environmental Engineering
- Computer Science & Engineering
- Electrical Engineering
- Human Centered Design & Engineering
- Industrial & Systems Engineering
- Materials Science & Engineering
- Mechanical Engineering

## DEGREE PROGRAMS

**Bachelor of Science (BS)** - prepares students for graduate work or careers in industry.

**Master of Science (MS)** - prepares students with a high level of technical competence for careers as professional engineers, or for further graduate study.

**Doctor of Philosophy (PhD)** - trains engineers for research leadership roles in academia, industry and research institutions.

## STUDENT DEMOGRAPHICS

Undergraduate enrollment: 4,350 | Bachelor's degrees awarded 2014: 927  
 Graduate enrollment: 1,829 | Master's degrees awarded 2014: 509  
 Doctoral degrees awarded 2014: 134

| DIVERSITY OF DEGREE RECIPIENTS | BS  | MS  | PhD |
|--------------------------------|-----|-----|-----|
| Women                          | 22% | 26% | 31% |
| Underrepresented Minorities*   | 6%  | 8%  | 4%  |
| Asian Americans                | 27% | 14% | 10% |
| Foreign Nationals              | 12% | 19% | 38% |

\*African American, Hispanic American, Native American and Hawaiian/Pacific Islander



**Underrepresented engineering students at the UW who use Diversity & Access (D&A) services are admitted to engineering departments at four times the rate of those who do not. These critical services couldn't be offered without the generous support of D&A alumni, corporate partners, and community organizations.**

- Eve Riskin, Associate Dean of Diversity and Access

### MATHEMATICS ACADEMY INSPIRES NEW HUSKY



David Coven arrived at the UW knowing he wanted to be an engineer. He attended Math Academy and credits the intensive summer program for connecting him with opportunities like an internship through the NSF Research Experience and Mentoring Program and the ALVA program. "Math Academy was amazing," he says. "It gave me the resources, support, guidance and mentorship not only to navigate the university level path, but to find success in it." David received direct admission into UW Engineering and is pursuing a double major in mechanical engineering and mathematics. He still finds time to perform undergraduate research and follow his passion for outreach. Currently, he is working on a website to help students apply for scholarships. For David, outreach programs like D&A and Math Academy made an

impact on his path to engineering and he wants to help other students succeed in the same way.



## FROM STUDENT TO ENGINEER: A PATHWAY TO SUCCESS

The challenges we face locally, nationally, and globally are complex and difficult. Never has there been a bigger need for innovative thinkers who can collaborate across disciplines and cultures to find solutions. The University of Washington is educating a new generation of innovative engineers with the skills and knowledge to meet the challenges of the twenty-first century.

The path to becoming an engineer is not easy. Students need encouragement and continuous support to succeed in engineering. The challenge is to bring more voices and minds to engineering to reflect the diversity of our community. Unfortunately, economic, cultural, social, educational, and institutional factors continue to discourage women and underrepresented minorities from pursuing engineering education and rewarding careers in this field.

The Office of Diversity & Access (D&A) offers opportunities and support through a team of dedicated professionals committed to providing all students with an enriched academic experience. From high school to college graduation day, D&A staff help students achieve their potential and dreams.

### RECENT GRAD FOLLOWS ENGINEERING PASSION



Sirena Merfalen graduated from the UW in 2013 with a degree in industrial & systems engineering and works as a 737 Wings Industrial Engineer at The Boeing Company.

However, engineering was not always the path Sirena thought she would follow.

Growing up, she had an aptitude for math and science, but she was intimidated by engineering.

As an undergraduate, she was actively involved with many D&A programs. She served on the Women in Science & Engineering Advisory Board, and joined the Louis Stokes Alliance for Minority Participation program and the Society of Hispanic Professional Engineers.

Thanks to her networking connections, Sirena landed an internship in telecommunications engineering, an experience that paved the way for her career today. She credits her participation in these programs with teaching her to navigate engineering in college and succeed in her career and as a female minority engineer.

# THE ACADEMIC PATHWAY

D&A HELPS STUDENTS INTERESTED IN ENGINEERING SUCCEED IN THEIR EDUCATION AND CAREER PREPARATION. PROGRAMS ENCOMPASS THE THREE KEY STAGES OF THE ACADEMIC PATHWAY:

## K - 12 OUTREACH

Outreach and recruitment programs engage students from an early age with science and engineering, generate excitement about college, and support preparation for the rigors of undergraduate study.

### BUILDING THE VISION

**Engineering Discovery Days** – on the UW campus each spring, students grades 4th -12th explore the world of science and engineering through interactive exhibits, hands-on activities, and visits to UW labs. Students and families also learn about admissions, financial aid, and university life.

**Women in Science & Engineering (WiSE)** – WiSE invites high school students to join college students, faculty, and staff for a day of exploration, professional development, and community building at its annual conference.



**7000**  
STUDENTS  
GRADES 4-12  
REACHED  
ANNUALLY

### BUILDING THE PIPELINE

**Mathematics Academy** is a four-week summer residential program on the UW campus for high-achieving students entering their senior year of high school. They develop skills needed for college-level math and engineering courses and explore engineering careers.

**Early Engineering Institute** is a one-week summer residential program on the UW campus for educationally and economically underserved high school students. Students are given access to engineering and college preparation courses.

### Recruitment and Admission

We participate in extensive outreach and recruitment programs sponsored by the UW Office of Minority Affairs & Diversity. We also partner with UW Admissions to offer information sessions for prospective students.

## TRANSITION PROGRAMS

**Summer Bridge Programs** provide new students with a range of experiences to help them to build a peer and advising network, strengthen skills in math problem solving, provide them academic success strategies, engage them in undergraduate research, and offer them opportunities to explore campus life before starting college classes.

**Freshman/Transfer Orientation** sessions provide new students their introduction to the places, people and programs that make the UW a special community. During these summer sessions, advisers welcome students, connect them with important resources, and help them register for autumn quarter classes.

**66%**  
OF MATH ACADEMY  
PARTICIPANTS  
FROM THE LAST 3  
COHORTS ATTEND  
THE UNIVERSITY OF  
WASHINGTON



# UNDERGRADUATE ACHIEVEMENT

Critical to student retention in engineering are services for academic advising and support.

### ACADEMIC SUPPORT

**Engineering Academic Center (EAC)** - Located in Loew Hall, the EAC fosters an environment where students work collaboratively on their math, science, and engineering coursework. The center provides tutoring and workshops that focus on building critical academic skills for the core math, chemistry, and physics courses.

**Academic Advising** - Advisers encourage students to explore their academic interests, develop plans for their major, and engage in student communities and experiential learning opportunities.

**Washington State Academic RedShirt (STARS) in Engineering program** - Provides high-achieving students, who are eligible for financial aid, with a specialized first-year curriculum designed to strengthen learning skills and increase career awareness. STARS students graduate in five years, bypass the competitive application process to engineering programs, and are more likely to obtain degrees in engineering.

IN THE FIRST YEAR  
OF THE PROGRAM,  
**70%**  
OF STARS STUDENTS  
WERE ADMITTED TO  
THE ENGINEERING  
DEPARTMENT



### EXPERIENTIAL LEARNING

Experiential learning is a vital component of a robust engineering education and a strong influence on academic achievement. It gives students the opportunity to gain relevant engineering experience outside the classroom in industry, research labs, and the community.

**Alliances for Learning and Vision for Underrepresented Americans (ALVA)** is a partnership between the Minority Scholars Engineering Program and industry designed to help pre-engineering students envision themselves as professional engineers through a summer internship program with professional development activities and community building.



### COMMUNITY AND LEADERSHIP

**Women in Science & Engineering (WiSE)** provides networking, professional development, mentoring, advising, and tutoring for science and engineering majors.

**Minority Scholars Engineering Program (MSEP)** offers summer transition programs, co-enrollment courses, advising, ALVA, scholarships, academic support, and advocacy for students from underrepresented communities.

**Student societies** foster collaboration across disciplines, develop members' leadership skills, and provide supportive peer networks. Society members contribute to recruitment and outreach efforts and serve as ambassadors for their programs.

WOMEN WHO  
PARTICIPATE IN  
WiSE ARE  
**3X**  
MORE LIKELY TO BE  
ADMITTED TO AN  
ENGINEERING  
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