AAAS S-STEM Initiative

- Developing an Evidence-Based Best-Practices Community for Supporting Low-Income High-Achieving Students in STEM Education and the Workforce, NSF Grant No. 1832942

- S-STEM Symposia in 2019 & 2021, and a webinar series

- AAAS S-STEM Initiative Website https://www.sstem.aaas.org/

Iris R. Wagstaff, PhD
AAAS STEM Program Director, NSF PI

Advisory Board

- **Karen Wosczyna-Birch -** *State Director, CT College of Technology; Executive Director & Principal Investigator, Regional Center for Next Generation Manufacturing, USA*
- **David Brown -** Professor of Chemistry, Southwestern College
- **Kelly Mack -** *VP for Undergraduate STEM Education and Executive Director of Project Kaleidoscope, Association of American Colleges and Universities (AAC&U)*
- **Yvette Pearson -** *Associate Dean for Accreditation, Assessment, and Strategic Initiatives, Rice University*
- **Ivory Toldson -** *President & CEO, Quality Education for Minorities (QEM)*

Recruiting Students to Your S-STEM Project

May 29, 2020

Eve Riskin
Professor of Electrical & Computer Engineering
Associate Dean of Diversity & Access
Faculty Director, UW ADVANCE
University of Washington

My background

- Research in image and video compression
- 30 years in UW ECE
- UW ADVANCE Faculty Director, 2002---
- Associate Dean of Academic Affairs, 2005-14
- UW STARS PI, 2013 ---
- Associate Dean of Diversity & Access in UW Engineering, 2014 --- 2020
- ????, 2020 -- ???

ADVANCE CENTER FOR INSTITUTIONAL CHANGE
UNIVERSITY of WASHINGTON

UNIVERSITY of WASHINGTON
COLLEGE OF ENGINEERING
Diversity & Access

My Two S-STEM Grants

1) Engineering the Husky Promise, 2010-2014
2) Collaborative Research: The Redshirt in Engineering Consortium, 2016 - 2021

S-STEM Grant #1– Engineering the Husky Promise

Engineering the Husky Promise

- Took four submissions to get funded!
- Focus on URMs, women, and transfer students in UW College of Engineering
- 85% scholarship $$/15% other $$
- Recruited from current UW students
  - Primarily transfer students to ensure they would be admitted to Engineering
  - Limited number of freshmen

Recruitment Strategies We Used

- **Word of Mouth**
  - **Faculty**
  - **Professional advisers**
- **Our summer Math Academy**

We Had Amazing Students!

- Adult students
- Returning students
- (Too young) heads of households
- Student-parents
- Refugees

End-of-Year Celebration

S-STEM Grant #2 – The Redshirt in Engineering Consortium

Background: The UW STARS Program

Washington STate Academic RedShirt (STARS) program

- Modeled after GoldShirt program at University of Colorado Boulder
- Funded by collaborative NSF STEM grant with Washington State University in 2013
- Goal was to increase engineering and CS degrees earned by students from low-income backgrounds

Program with 4 Key Pillars – UW STARS is 2 years

STARS Student Demographics

- 239 Students (Cohorts 1-VI)
- 41% Women
- 82% Pell-eligible
- 49% URM Students
- 72% First-Generation

Who is eligible for UW STARS?

Eligibility Requirements

- **Washington state residents who are U.S. citizens or permanent residents**
- **Eligible for financial aid (e.g. Pell Grant, Husky Promise, or Washington College Grant)**
- **Intended major is engineering or CS**
- **Graduated from an under-resourced high school in Washington state (>=30% of students on FRL)**

Survey Shows STARS students:

- Are more attached to engineering or CS
- Are more confident in their math and science abilities, and in time management, networking, and interviewing skills
- Are more familiar with campus resources
- Are more comfortable asking for help
- Are buffered from usual decline in self-confidence of engineering 1st-year students

Academic Performance

STARS Cohorts I-VI

Course	Mean STARS Grade	Mean Non-STARS Grade
Calculus I	3.46	2.62
Calculus II	3.44	2.84
Calculus III	2.90	2.72
General Chemistry I	3.33	2.67
General Chemistry II	3.08	2.68
Physics I	2.99	2.78
Computer Science I	3.33	2.59
Computer Science II	2.92	2.63

STARS Student Retention

COHORT	YEAR	N	ENGR/CS	STEM	UW
I	2013	29	59%	62%	90%
II	2014	32	75%	81%	97%
III	2015	29	69%	76%	83%
IV	2016	28	93%	93%	100%
V	2017	51	84%	84%	100%
VI	2018	40	95%	95%	100%
I—VI	2013-2019	209	80%	83%	96%

Redshirt in Engineering Consortium

- University of Colorado Boulder
- University of Washington
- Washington State University
- Boise State University
- University of California San Diego
- University of Illinois Urbana-Champaign

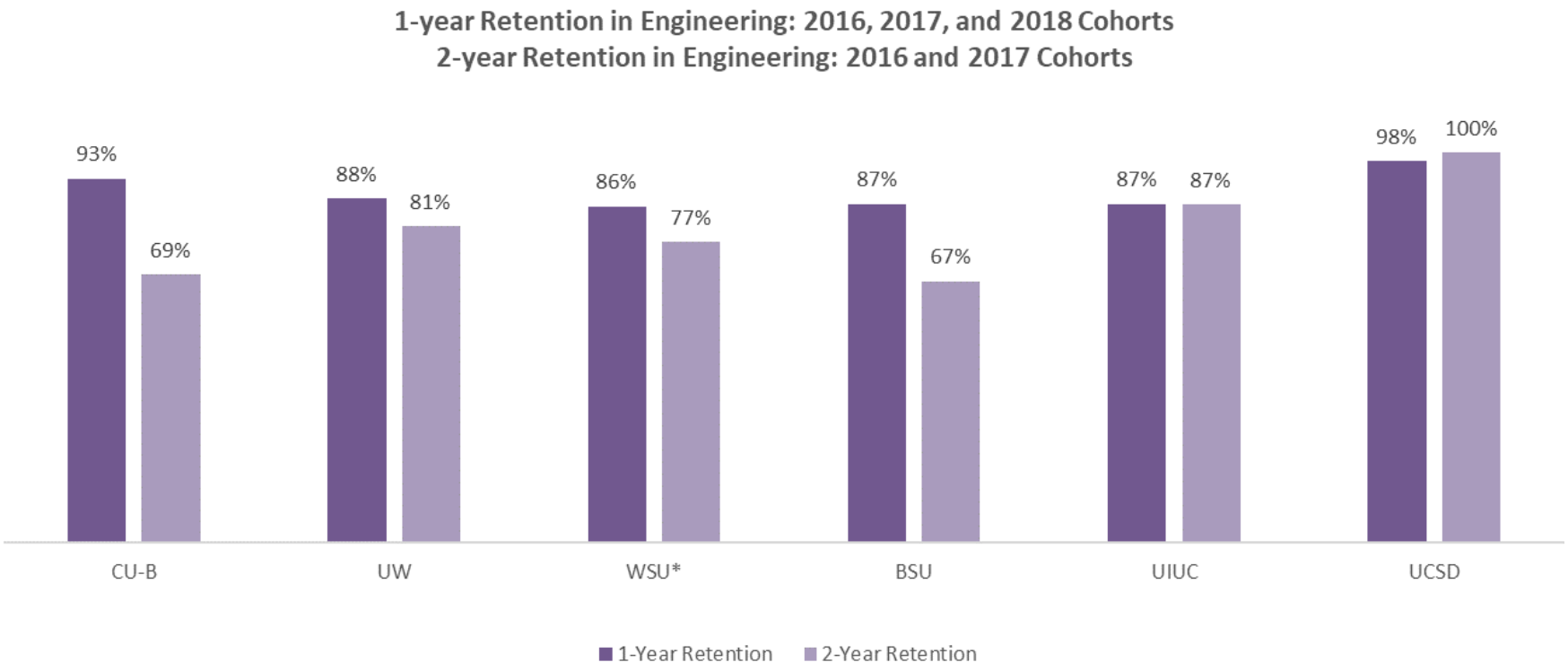
This was a 60% scholarship / 40% other S-STEM grant

Redshirt in Engineering Consortium

The full proposal including forms was 236 pages!

Student retention in engineering

(WSU data only for 2016 and 2017 cohorts)



Recruitment Ideas

- Partner with Minority Affairs office
- Find favorite high school counselors in underserved high schools
- Non-profit college prep programs
  - Posse Foundation, QuestBridge
  - Rainier Scholars, Making Connections, WSOS, Prep for Prep
- Word of Mouth!!!

STARS Admission Process (1)

- UW Admissions helps identify eligible students from application info
- STARS reaches out to eligible students
  - Current students make phone calls
  - Snail-mail
  - Multiple emails
- STARS reaches out to HS counselors

STARS Admissions Process (2)

- 110 -- 210 students apply
- Applications are read twice
- 50-65 students are interviewed
- 30 students are invited to join STARS
- Some students decide to attend UW based on STARS admission

STARS Student Selection

STARS Director Sonya Cunningham seeks:

- **Willingness to work hard**
- **Resilience**
- **Interest in engineering**
- **Understanding of STARS model**

My Thoughts for New S-STEM PIs (1)

- It is hard to figure out how S-STEM fits into a "regular" faculty member's FTE
- Can it be a course release?
- Can it be part of your scholarship?

My Thoughts for New S-STEM PIs (2)

- Fits well with STEM administrator
- Needs to be a labor of love
- Is a chance to have great impact on wonderful students



To Learn More

- I've submitted an NSF S-STEM Redshirt Conference proposal
- ASEE Conference workshop in June about Redshirt programs
- Email me at riskin@uw.edu

Webinar Follow-up

- Slides and recording will be posted on the S-STEM website at https://www.sstem.aaas.org/

- Please complete the post-webinar survey

- S-STEM LinkedIn site – AAAS S-STEM Initiative

Thank you!