

# MATHEMATICS, ENGINEERING SCIENCE ACHIEVEMENT (MESA)

*“When I told my friends and family that I wanted to be an electrical engineer, they laughed at me, because they had never seen a Hawaiian engineer...I had the drive and determination, I just didn't have the guidance to go to the university...When I went to Highline I joined MESA and that was the life-changing event...MESA helped me and pushed me to go to higher levels than I ever expected.”*

*– Kalani Plunkett, Highline College MESA electrical engineering student accepted into Washington State University and University of Michigan<sup>1</sup>*



MESA summer math scholars, courtesy of Washington STEM

## Growing STEM talent

Washington MESA – Mathematics Engineering Science Achievement – helps under-represented community college students excel in school and ultimately earn STEM<sup>2</sup> bachelor's degrees. The timing couldn't be better.

Here in the home of Amazon, Microsoft, Boeing and hundreds of other tech-based companies, 25,000 jobs are unfilled because of a mismatch between the skills people have and those employers need.<sup>3</sup> Eighty percent of those jobs are in high-demand STEM and health-care fields.<sup>4</sup>

MESA creates a wider, deeper talent pool that taps the potential of our diverse population. It opens doors to good jobs and a higher standard of living.

## Support and inspiration

MESA has two key programs: one for K-12 students, and the other for community and technical college students. The K-12 program helps students at middle and high schools (and some elementary schools) succeed in math and science and become competitively eligible for college. The community college program takes it one step further by helping students move ahead and ultimately earn a STEM bachelor's degree.

The community college program offers:

- An orientation course that introduces students to STEM careers, learning strategies, and other tools for success.
- Academic Excellence Workshops to help students succeed in STEM courses.
- Academic advising to keep students on track.
- A designated study center where students do homework and establish a learning community.
- Personal help in transferring to a university.
- Direct administrative support for students, which includes a director, faculty, and advisor support.

## Legislative request: more MESA

The State Board for Community and Technical Colleges is seeking \$4.56 million in the 2015-2017 operating budget to expand the current six MESA pilot colleges<sup>5</sup> to 20 colleges across the state.

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## Proven results

Most MESA students are the first in their families to attend college, are low-income, and have not been exposed to STEM curricula and career choices. MESA changes that equation.

In Washington, MESA has served approximately 1,200 community college students since its start in 2009.<sup>6</sup>

At participating community colleges, MESA students were more likely to persist, transfer to a university, and earn a STEM-related bachelor's degree than other under-represented students pursuing STEM studies at those colleges.<sup>7</sup>

Compared to the rest of the community college system, MESA colleges produce a greater share of Associate of Science-Transfer degrees (AS-T) with more diverse graduates.

### In a 4-year period from 2010 to 2014:

- **Degree production increased:** AS-T degrees increased 47 percent at MESA colleges compared to 39 percent for the rest of the community and technical college system.<sup>8</sup>
- **Graduates became more diverse:** MESA colleges produced more AS-T degrees during that 4-year time period by graduating a greater share of under-represented students who might otherwise have chosen a non-STEM path. The colleges nearly doubled the share of AS-T degrees for Hispanics, Native Americans and Black/African Americans from 10 percent to 19 percent (compared to 7 to 12 percent for the rest of the community and technical college system). The share for all students of color increased from 38 percent to 48 percent (compared to 28 percent to 33 percent for the rest of the system).<sup>9</sup>

In the first MESA graduating class of 2011-12, 100 percent of the students who earned bachelor's degrees majored in STEM fields.<sup>10</sup>

## National recognition

Started in California, MESA has been named one of the most innovative programs in the nation by Innovations in American Government, a project of the Kennedy School of Government at Harvard University.<sup>11</sup> MESA is also a winner of the Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring.<sup>12</sup>

MESA answers a call from the National Academy of Sciences for our nation to “draw on the minds and talents of all Americans, including minorities who are underrepresented in science and engineering and currently embody an underused resource and a lost opportunity.”<sup>13</sup>

MESA provides a life-changing experience for talented students to develop their skills, succeed in college, and experience a fulfilling STEM-based career.

### Sources:

1. Testimony before the House Higher Education Committee, Feb. 25, 2014.
2. STEM stands for “science, technology, engineering, math.”
3. Great Jobs Within our Reach: Solving the Problem of Washington State’s Growing Skills Gap,” Washington Roundtable, March 2013.
4. Ibid.
5. Olympic College, Edmonds Community College, Seattle Central College, Highline College, Yakima Valley Community College and Columbia Basin College.
6. 2009-2010 to 2013-2014 school years. James Dorsey, MESA executive director. Message to the author. 16 Oct. 2014. E-mail.
7. Washington MESA Community College Program Overview, Data & Highlights, by Washington MESA, Jan. 19, 2014.
8. Washington MESA Community College Program Overview, Data & Highlights, by Washington MESA, Jan. 19, 2014, updated by SBCTC Research Department Oct. 2014.
9. Washington State Board for Community and Technical Colleges Research Department, Oct 22 2014.
10. Washington MESA Community College Program Overview, Data & Highlights, by Washington MESA, Jan. 19, 2014.
11. Innovations in American Government Awards, Kennedy School of Government at Harvard, awarded to California MESA in 2001.
12. Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring, California MESA 2000.
13. Expanding Underrepresented Minority Participation: America’s Science and Technology Talent at the Crossroads, National Academy of Sciences, National Academy of Engineering and Institute of Medicine, 2011.

