



MEDIA RELEASE

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College Students Partner to Advance Mentorship, Equity in STEM

DES MOINES, Wash. — Highline College and University of Washington students recently came together to not only build analog heart rate monitors from scratch in a virtual environment, but they put in motion a solution to help students of color gain a competitive edge when pursuing STEM education.

Earlier this year, the University of Washington’s student-led STEM group [AVELA](#) (A Vision for Electronic Literacy & Access), which is made up of underrepresented students, reached out to Highline’s [MESA](#) (Mathematics, Engineering, Science Achievement) program to inquire about a mentorship opportunity.

Two of AVELA’s members, [Abigail Colmenares](#) of Auburn/Federal Way and Liban Hussein of Kent, are Highline alums and former MESA students, so the connection was easy, MESA Director Timur Kuzu said.

“Having the AVELA student leaders lead STEM-based projects assists with helping first-generation students who come from the same environments and backgrounds as they do, which creates a common bond and builds community,” Kuzu said.

MESA already has a goal to help underrepresented, first-generation and/or undocumented students as well as those who are at an economic disadvantage pursue their STEM education. Whether that be through academic and personal support, financial aid and transfer advising help or professional development opportunities, each MESA student is given a personalized success plan.

By the end of summer 2021, the groups had spent six weeks together on the analog heart rate monitor project.

“There was added motivation for this project, namely because of the current health climate (global pandemic), as well as a common curiosity to explore ‘analog electronics’ further,” said Hussein, who is a current University of Washington graduate student studying to get his Ph.D. in electrical engineering with a focus on developing medical devices and circuits using integrated photonics.

Hussein explained that the way the monitor works is through a circuit that monitors one’s heart rate using conventional electronics free of any digital components. The total cost is \$10 to make one, making it an attractive and practical option for third-world areas.

“AVELA aims to bridge the opportunity gap currently present in the public education system by increasing minority participation in STEM by providing workshops, classes, panels and tutoring K-14 students from minority backgrounds,” said AVELA’s co-founder Kyle Johnson, who is currently a University of Washington student studying to complete his Ph.D. in computer science and engineering. “Offering young students exposure to STEM fields, technical experience and mentorship will allow them to hit the ground running at a community college, university and/or in industry.”

By working with underrepresented minority high school or community college transfer students on projects such as the analog heart rate monitor, it gives those students one more bullet point of experience to add to their college application, resume or personal website.

But creating STEM opportunities for underrepresented minority students, which include Black/African American, American Indian/Native American, Hispanic and Hawaiian/Pacific Islander ethnicities, is beyond a top priority of MESA and AVELA.

By 2030, Washington STEM, a statewide education nonprofit, [estimates](#) “87% of high-demand, family-sustaining wage jobs available in [King County] will require a postsecondary degree or credential” and “67% of those jobs will be STEM or STEM literacy-based occupations.” Yet, as of April 2021, the nonprofit reported only 52% of high school graduates from 2018 were expected to obtain a college degree with less pursuing STEM degrees and even fewer of those graduates identifying as women or students of color.

Because STEM careers tend to pay higher, six-figure salaries, creating access and opportunity to Washington’s diverse student population is more important than ever before.

While [progress](#) is being made state and countywide, closing the skills gap takes innovative solutions, such as the MESA and AVELA partnership, to continue to advance equity in STEM.

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Links within this release:

- <http://students.washington.edu/avelauw/index.html>
- <https://mesa.highline.edu/>
- <https://www.highline.edu/about-us/highline-profiles/abigail-colmenares-profile/>
- <https://washingtonstem.org/wp-content/uploads/2021/04/King-Region-SBTN-4-9-21.pdf>
- https://washingtonstem.org/wp-content/uploads/2019/07/STEM-by-the-Numbers-Report_ExecSummary_2019.pdf

Founded in 1961 as the first community college in King County, Highline College annually serves more than 16,500 students. With over 70 percent students of color, Highline is the most diverse higher education institution in the state. The college offers a wide range of academic transfer, professional-technical education, basic skills and applied bachelor's degree programs. Alumni include former Seattle Mayor Norm Rice, entrepreneur Junki Yoshida and former Washington state poet laureate Sam Green.