

BridgeValley STEM Scholars Program

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BridgeValley STEM Scholars Program for Engineering and Applied Technology Majors to Increase Enrollment and Retention

BridgeValley Community and Technical College (BridgeValley CTC) located in south-central West Virginia, was awarded a NSF S-STEM (NSF Scholarships in Science, Technology, Engineering, and Mathematics) 5-year grant in 2013 to establish a STEM Scholars program to increase: the annual, full-time enrollment of engineering technology and applied technology majors, the retention of and degree completion rates of participating STEM majors, and the number of graduated STEM Scholars who become employed in their field or continue their education.

BACKGROUND:

BridgeValley Community and Technical College has undergone many changes since the initial award of the NSF S-STEM grant. BridgeValley CTC was founded on March 20, 2014 after the consolidation of Bridgemont and Kanawha Valley Community and Technical Colleges. Existing campus locations will be maintained in Montgomery and South Charleston, along with the addition of the new Advanced Technology Center. BridgeValley CTC awards one-year certificates and two-year associate degrees in many engineering technology fields including civil, mechanical and electrical engineering technology; business and health management, nursing, dental hygiene, business technology, medical assisting; diesel technology, computer information technology, and welding.

The consolidation of the two community colleges increased the overall headcount and majors available while also increased the service area. The college grew to have two campuses approximately 30 miles apart. The students in the majors served by the STEM Scholars program are now located on both campuses with the Montgomery campus maintaining the accredited engineering technology programs, while the South Charleston campus primarily hosts the applied technology degrees.

The consolidation to BridgeValley CTC brought many additions and challenges to the STEM Scholars Program. The official name on the grant must remain as Bridgemont, even though our college's name has changed. For marketing purposes we use our current name. The college's service area has grown from five counties to the majority of southcentral West Virginia. However, the overall demographics of the students served is generally consistent. The original surveys and research produced data that showed the demographics of the students served by BridgeValley CTC to be disadvantaged, having come from low-income families in West Virginia, requiring financial assistance and developmental courses upon enrollment.

A grant research survey conducted in 2012 showed that 84% of students received financial aid, 55% stated that a lack of funding delayed progress toward a college education, and 88% expressed concern over having sufficient funds for college. Over 60% of students indicated that they work an average of 27 hours per week to supplement their income for college. This data aided in the creation of BridgeValley CTC's STEM Scholars program to address issues of retention and enrollment in the engineering technology and applied technology programs. The

merging of the two community and technical colleges did widen the demographic to include more urban students to the past majority of rural based students. However, the financial aid issues remained relatively constant due to the overall demographic of those residing in West Virginia.

The primary region served by BridgeValley CTC primarily attracts commuter students. Originally many of the students come from disadvantaged communities with on average 43% of the students considered are low-income, and over 65% of entering students require developmental (pre-college level) courses. Over 76% of students require financial assistance. Many students are first generation college attendees in their families.

PROGRAM IMPACT:

The STEM Scholars Program awards are based on academic achievement and qualification for financial aid. The amount of the award is such that the student should have the supplemental funding needed so that academics can be a priority over part-time employment. Employment outside of the academic semesters is encouraged in the form of internships in field.

The STEM Scholars Program at BridgeValley CTC incorporates academic and collaborative support in addition to financial support. The program originally targeted nine majors for inclusion in the STEM Scholars program. All of these majors are within the Technology Division with five of them being Associate of Science degrees, and four are Associate of Applied Science degrees. Since the award of the grant two of the majors have been discontinued at the college: *Computer-Aided Drafting and Design Engineering Technology* and *Blasting Technology*. Both were low enrollment programs. One of the STEM programs has expanded. The Information Technology program is now the Network Engineering Technology program with the additional majors such as Cyber Security, Computer Science Technology, and Web Design.

The first cohort of students (10) were awarded STEM Scholars scholarships in the 2014-15 academic year. Twenty-one students were awarded during the 2015-16 academic year, with nine of those being retained from the first cohort. Fall 2015 enrollment in the STEM majors was 222 students. This was an increase from 199 students in the fall of 2014. Over 50% of the STEM Scholars applicants do not qualify for the program based on financial need according to the FAFSA (Free Application for Federal Student Aid), or because they are not in an approved STEM major.

Just over \$47,000 was awarded in scholarship funds to the STEM Scholars in 2014-15. With both freshman and sophomore cohorts in place, over \$109,000 was awarded in the 2015-16 academic year. The average award was approximately \$5,000 per student.

Many students entering BridgeValley CTC are below mastery of college level math and English. BridgeValley CTC has moved from a summer bridge program for additional math and English testing support, to a collaborative class that places students in co-enrollment classes for support dependent on testing scores. This effort not only streamlines the courses offered, it gives the student the assistance needed to remain on a 2-year schedule to graduate.

Additional supporting activities that are included in the STEM Scholars Program allow students access to tutoring and counseling in student success centers. STEM Scholars also have access to industry mentors who are available to guide the student if questions arise involving future employment. STEM Scholars are also offered career preparedness options, and encouraged to seek out summer internships as opportunities for experiences that expose students to their chosen field.

EVALUATION:

STEM Scholars students have to maintain scholastic goals and involvement expectations while in the program and receiving financial benefit from the scholarship program. Meeting these objectives while maintaining a full-time schedule is the key to meeting the goal of graduating in two years, while being academically sound and financially debt free. Success in this program is determined by tracking student retention and graduation rates, and surveying what students pursue after graduation. Retention and graduation rates are tracked for all BridgeValley CTC students so comparisons to the overall student body can also be made.

The STEM Scholars student retention rate between year one and year two of the grant was 90%. One cohort of freshmen expanded to two cohorts in the second year. During year two, eight of the freshmen were retained, with one leaving the college for employment, and one transferring to another college in West Virginia. Six of the original STEM Scholars then graduated in May of 2016. One had graduated early, and three had left the school either for preferred employment or due to poor academic performance. Retention is trending higher than graduation rates and both will be closely looked at in the next year.

The STEM Scholars Program at BridgeValley CTC stands to serve other programs and majors within the college by creating a model that supports the students academically and socially, in addition to financially. Through this model, and through outreach that strengthens partnerships between community colleges and area industries, the program meets the needs of many first-generation college students in the region and helps to create a more educated workforce in West Virginia.

References

History and Locations of BridgeValley Community and Technical College:
<http://www.bridgevalley.edu/history>; <http://www.bridgevalley.edu/campus-locations>

STEM Scholars Scholarship Program:
<http://www.bridgevalley.edu/stem-scholars-scholarship-program>

BridgeValley Community and Technical College, *Master Plan, Focusing on the Vision 2015-2020*. <http://www.bridgevalley.edu/2015-2020-strategic-plan>

S-STEM Grant Research Study (2012), S-STEM Student data collection (2013-present) by BridgeValley Community and Technical College / M. Thompson.