Siemens Technical Scholars

Eligibility Methodology (2019)

Executive Summary

The following selection methodology is used to select approximately 100 public two-year eligible institutions (out of ~1000 potential community colleges nationwide) as eligible to apply for the $50,000 Siemens-Aspen Community College STEM award.

The process engages in both quantitative and qualitative analysis, in consultation with numerous experts in the fields of higher education and workforce development and uses publicly available data from the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS), the College Scorecard, and the U.S. Census Bureau.

The methodology to determine eligibility began by examining institutions' median earnings by educational attainment for the institution's Public Use of Microdata Area (PUMA) (American Community Survey). A series of individual regressions were run using median earnings six years after enrollment (College Scorecard) as the dependent variable. Six regressions were run to see which of the following variables had the biggest impact on median earnings:

- Percent Pell (IPEDS)
- Percent URM (IPEDS)
- Percent PT (IPEDS)
- Percent Vocational (IPEDS)
- Size of Institution (IPEDS)
- Median Earnings by Educational Attainment in the region (American Community Survey, Public Use Microdata Area)

From this analysis, the three variables that explained the most variance in median earnings were: percent Pell, percent URM, and median earnings by educational attainment in the region. Multivariate regressions were using the following sets of variables:

- Percent Pell, Percent URM
- Percent Pell, Median Earnings by Educational Attainment in the region
- Percent URM, Median Earnings by Educational Attainment in the region
- Percent Pell, Percent URM, Median Earnings by Educational Attainment in the region

One multivariate regression was also run controlling for all six of the factors listed above.

Top performing institutions (e.g., those with labor market outcomes that "outperformed" holding contextual variables in consideration) were then evaluated by two criteria:

1) Had to be in the top 600 institutions based on the 2017 Aspen Prize for Community College Excellence student success metrics; and

2) Had to have a positive average dollars above expectation across all the regressions.

In addition to this quantitative review, Aspen sought out qualitative endorsements of institutions either referenced by experts or in the literature. This was done in two ways:

1) Aspen conducted an extensive literature review, consulting publications and resources from a variety of organizations in the field.
2) Aspen held calls with an array of community college and labor market experts.

The top 25% of institutions that performed well on the quantitative analysis were verified through further qualitative review to select ~100 institutions invited to apply to the 2019 Siemens Technical Scholars program.

Applications are read and ranked by a distinguished selection committee. Top applications are selected for discussion at a selection committee meeting, during which experts in community college practice, labor market trends, and STEM fields elect eight winning Siemens-Aspen Community College STEM programs.

Winning programs will be awarded $50,000, half of which will go to program development and the other half of which will be put toward student scholarships.

Note: The Aspen Prize model focuses on performance, improvement, and equity, and more information on that process can be found here. While the Aspen Prize model for eligibility does not take into account labor market outcomes, it was used as the baseline for this work because strong outcomes on those metrics indicate institutions with purposeful practice and controls somewhat for institutions with strong labor market outcomes purely due to its proximity to specific employers or jobs in particular fields.