



# HOW CS FOR CLE IS PREPARING THE LARGEST NETWORK OF CS TEACHERS IN THE LAND

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## WEST COAST BEGINNINGS

In 2010, five universities across the country participated in a pilot of a new Advanced Placement (AP) computing course aimed at addressing the field’s striking under-representation, called Computer Science Principles ([CSP](#)).

The [University of California San Diego](#) was one of these pilots, where [Beth Simon](#) and her team developed “[Fluency with Information Technology](#),” an active learning curriculum with a free online text and planning guide that fit the new AP-CSP framework. Based in the [Alice](#) programming language, Simon’s course was designed to attract students without any prior computing knowledge and showcase the breadth of computing applications through project-based lessons.

And it has done just that. The team has since prepared teachers across Southern California, reaching nearly a thousand students. In one district, AP-CSP enrollment increased from just 2 students to 40.

## BRINGING CSP TO THE 216

Simon then teamed up with the group led by [Nigamanth Sridhar](#) and [Debbie Jackson](#) at Cleveland State University ([CSU](#)) to bring the success of the course to Ohio. The team set out with the goal to increase the quantity and quality of computer science courses available to students across Ohio by creating the Computing in Secondary Schools ([CISS](#)) project. By adapting Simon’s course into a dual enrollment option for students in CSP courses at partner schools throughout the [Cleveland Municipal School District](#) (CMSD), CSU laid the tracks for a new pathway of CS Education in which students attracted to the immersive and project-based approach of the CSP course also received college credit for an intro level CS majors course.



*Debbie Jackson (second from the left, front row) and Nigamath Sridhar (far right) with teachers from the 2nd cohort (2015) of the CISS project.*

One of the brightest outcomes from this effort is the [John Marshall School of Information Technology](#). With the input of CSU team, the CMSD designed a new, a four-year high school with a revolutionary learning strategy: in addition to requiring students to taking one CS course each year, computational thinking and CS concepts would also be woven across ALL of their subjects.

## PREPARING NORTH COAST CS TEACHERS

Key to the success in Cleveland; however, was the CISS teacher professional development program. This not only provided teaching licensure to pre-service teachers in the [CSU Teach](#) and post-baccalaureate programs, but also prepared in-service teachers through an intensive professional development course. This entailed a six-week online course in CSP content, bookended by week-long in person summer institutes on content and pedagogical training in [peer instruction](#) teaching methods.

After working with over 60 schools, and teachers from all across Ohio, the CISS team successfully reached nearly TWICE as many teachers and schools as originally planned. Teachers like Briana Guevara (*right*), who participated in the intensive training offered by CISS have since grown to be master CS Principles teachers. Briana is a master teacher for the CMSD and is now working with Sridhar and Jackson in their newest collaboration: CS for Cleveland (CSforCLE).



## CS FOR CLE

[CSforCLE](#) brings the momentum of [CSforAll](#) to Cleveland school districts, training several cohorts of teachers through a professional development and support program led jointly by CSU's [Washkewicz College of Engineering](#) and the [College of Education and Human Services](#). Currently, about a third of the District's high schools now include computer science curricula, and the initiative will soon expand training to the remaining high schools in the district. In addition, CSU has connected with local and national partners like the [Microsoft TEALS](#) program, the [Cleveland Foundation](#), the [RITE Board](#), the [BioEnterprise Health IT Convening Group](#), and the [STEM Learning Ecosystems](#).



Through all of its collaborations and partnerships across Ohio and nationally, CSU is creating inclusive curriculum to prepare a new generation of teachers and making sure that the growing the pipeline of future experts in computer science includes students from all backgrounds and abilities.

*Top Panel: CSP students at JFK E3agle School in Cleveland learn the Alice Programming language. Their teacher, Aeneas Alldredge received professional development in the first cohort of CSforCLE. Bottom Panel: CSP Students at Lincoln West High School engage in a group discussion. Their teacher, Lisa Vine was also prepared through CSforCLE.*