

Abstract

Advancing Rural Computer Science (ARCS) is being submitted to the Education Innovation and Research Program, Early-Phase grant competition (CFDA Number 84.411C) for:

- Absolute Priority 1, Demonstrates a Rationale
- Absolute Priority 3, Field Initiated Innovations – Promotes Science, Technology, Engineering, or Math (STEM) Education, with a particular focus on Computer Science
- Competitive Preference Priority, Projects designed to improve student achievement or other educational outcomes in computer science

The project will serve 18,000 K-5 students and 440 K-5 teachers over 5 years. A majority of the students we propose to serve are considered high-need students in that they are members of subgroups who are traditionally underrepresented in STEM and computer science education, including non-white minorities, students from economically disadvantaged families, and/or students in rural communities.

The ARCS project will address four goals: (1) produce of a cadre of qualified teachers with computer science microcredentials who will build school-level capacity in computer science instruction; (2) develop accessible, field-tested instructional materials that integrate computer science curriculum standards into core elementary subject areas; (3) increase student readiness for pursuing rigorous STEM and computer science coursework among high need students; and (4) Establish high-quality evidence that will support ARCS program sustainability and expansion.

To achieve these goals, the project will implement a blended professional learning model through face-to-face summer professional development (PD) sessions and web-assisted school-year PD occurring through a Networked Improvement Community (NIC) model. Outcomes include the development of integrative computer science lessons and resources. The PD is also designed to prepare teachers to demonstrate mastery of this integrative approach through the attainment of microcredentials which may be used for licensure endorsement.

The Center for Educational Partnerships at Old Dominion University will serve as the lead agency for the proposed project, with collaborators from the Virginia Department of Education and CodeVA contributing to project activities, and the University of Virginia conducting the external evaluation.