

High school students enjoy project-based learning with new computing technologies. Block-based coding with NetsBlox & integrating varied applications and ethics inspires students to try CS for their own interests.

**New Challenges & Next Steps**

We reconsidered rapid deployment in multiple individual schools & now apply for state-level course adoption, which has been difficult in NC because of staff turnover and long lead times. We also had to redesign all of our camps and PD to be online for COVID, and discovered some useful ways to work synchronously and asynchronously, especially using coding videos.

**Equity**

Research-based strategies includ socially relevant applications and ethics integrated in each module. The curriculum uses project-based learning and four student team project. NetsBlox is a custom-designed programming environment to make advanced CS concepts accessible to students with less experience. Recruiting is targeted to girls through outreach and marketing design.

**Lessons Learned & Insights Gained**

Outstanding teachers are integral to successful curriculum design and deployment in schools. Our 4 modules are developed in iterative cycles: (1) researchers and graduate students create/curate materials and activities, (2) teachers refine activites during professional development, (3) teachers teach summer camps, (4) project staff and students refine curriculum, (5) teachers adopt modules in classrooms.

**CS Frontiers: Beyond CS Principles: Engaging Female High School Students in New Frontiers of Computing**

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Project type:​ Developing and Testing Innovations (DTI)

Project URL: <https://csf.isis.vanderbilt.edu/>

Project Overview: CS Frontiers is a new, high school computer science curriculum designed to dramatically expand access, especially for high school girls, to the most exciting and emerging frontiers of computing, such as distributed computation, the internet of things (IoT), cybersecurity, and machine learning

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