Bootstrap:Data Science
2019-2020 STEM Scale-Up Program

Grade Levels: 8-12, in school

Information Sessions: 4:00 PM 9/9, 9/19 https://brown.zoom.us/j/4103397237

Website: https://www.bootstrapworld.org/materials/data-science/

Award Provides:
- 3-day in-person training
- Access to online teacher materials
- Year-round support
- 25 student workbooks
- $120/day sub stipend (Thurs/Fri)
- $400 available travel stipend for mileage/lodging
- $170 stipend upon completion
- Online network of Bootstrap educators

Additional Cost(s) to Awardee In 2019-2020:
- Any additional travel costs beyond available stipend to Des Moines area, December 12-14
- Meals during workshop

Approximate Sustainability Cost After Award Period:
- $6/student workbooks (optional)

Program Summary:
What factors make a song a hit? Why do some people live longer than others? Who is the most dominant football player of all time? In a world awash in big data, being able to make sense of that data is a critical skill for everything from public policy to molecular biology, and from software development to shipping logistics. Writing code to crunch huge datasets is great, but coding should go hand in hand with being able to mathematically think, talk and analyze. Data is everywhere, and students must learn to transfer their mathematical knowledge and leverage their natural curiosity about data to ask deep questions, make decisions, perform meaningful analysis, and present and critique their findings.

In Bootstrap:Data Science, students form their own questions about the world around them, analyze data using multiple methods, and write a research paper about their findings. The module covers datasets, functions, iteration, data visualization, linear regression, and more. Social studies, science, and business teachers can utilize this module to help students make inferences from data. Math teachers can use this module to introduce and reinforce foundational concepts in statistics, and it is aligned to the Data standards in CS Principles.

The module starts with the basics and can be integrated into a mainstream class, delivered by a teacher with no prior CS experience. In this intensive three-day workshop, teachers will work through the entire module while learning pedagogical practices, implementation techniques, and collaborating with other educators. Teachers leave the workshop with the skills and resources they need to effectively implement the Bootstrap:Data Science material in their classroom in the spring of 2020.

Bootstrap was founded in 2005 and now reaches over 20,000 students annually. Bootstrap has a stated commitment to equity and is one of the largest providers of in-school CS education for underrepresented students in CS. This research-driven effort blends and leverages students' existing math knowledge with computer science and empowers underrepresented student populations to engage meaningfully in these disciplines. The material integrates with the Iowa Core Standards in Mathematics, Standards of Mathematical Practice, and NGSS Science and Engineering practices.

Requirements to Implement the Program:
Educator(s) must participate in all onsite sessions. Teams of two or more educators from the same district (can be different disciplines) receive priority registration.

Professional Development:
A three-day in-person workshop

Duration: 3 days onsite
Date(s): Dec 12-14, 2019
Location: Des Moines area

STEM Scale-Up Program Application Link: www.IowaSTEM.gov/Scale-Up-Application