Program Description

How many times have you asked your students to apply what they have learned towards creatively solving problems and found a sea of blank faces staring back at you? Working with K-12 educators with support from the National Science Foundation (NSF), the UC Davis K-14 Outreach Center for Computing and STEM Education (C-STEM) has developed a new strategy to help solve this problem. This academy will train teachers on how to integrate computer programming and computer science into STEM related curriculum (Technology courses, IT essentials, Introduction to Computers, Computer Applications, Computer Programming, Robotics).

Outline of Topics

- How a computer works
- Writing your first C program
- Variables in algebra and their applications in computing
- Math expressions and operators, and their applications in computing
- Selection statements and loops in C (Logical reasoning, critical thinking, and their applications Graphing and Solving Quadratics)
- Modular programming with functions in C (Writing functions and plotting)
- Arrays for processing data in C (Visualize experimental and measurement data)
- Working with data files in C (Process and save experimental and measurement data in files)
- Quick geometry visualization and animation in C (for future applications in geometry, physics, etc.)

Outcome for Trainees’ Students:

1. After taking this course, students will be able to solve complicated STEM problems using computers in the subsequent STEM courses such as math, physics, robotics, engineering, biology, and chemistry.
2. Work comfortably and competently with STEM principles.
3. Identify, formulate, and solve STEM problems.
4. Effectively use computer and computer programming for future employment.
5. Able to participate in the UC Davis Secondary School Programming Competition:
   http://c-stem.ucdavis.edu/activities/c-stem_day/

Details

Cost: FREE. For in-service teachers only. All attendees will receive software licenses, teaching materials, solutions manuals, and UC Davis C-STEM Center implementation support. Laptops are necessary during the training. 16 Professional Development Credit hours upon training completion for teachers in Yolo County (Sacramento pending).

Registration

Registration required. Please register for the academy through the website before July 28th to reserve your space.

Organizer: the UC Davis K-14 Outreach Center for Computing and STEM Education (C-STEM)
Sponsors: Yolo and Sacramento County of Education
Financial Supporter: National Science Foundation under the Grant CNS-1132709
Instructors: NSF CREST fellows (Washington USD: Francesca DeFazio 6th-8th, Sacramento City USD: Joe Stymiest 7th-8th, Michael Moore 9th-12th, Chris Schlesselman 9th-12th, Esparto USD: Spencer Krautkraemer 7th-8th. UCD School of Education: Ryan Mangan)

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