This Funding Opportunity Brief summarizes key information regarding a funding opportunity. If you would like more information regarding the CE21 program, Trivium Consulting will be happy to provide you with a comprehensive summary of the program’s priorities and application requirements. Please contact us to discuss the alignment of this funding opportunity with your organization’s capabilities and interests.

**SUBMISSION DEADLINE**

Full Proposal Deadline: **March 12, 2014**; second Wednesday in March, annually thereafter.

**FUNDING**

CE21 intends to make 13 to 20 awards annually, in standard or continuing grants. The total anticipated funding amount is $15,000,000 per year, pending availability of funds and quality of proposals.

- **CER** and **BP** projects will be funded at a maximum of $600K over a duration of 3 years.
- **CS 10K** projects will be funded at a maximum of $1M over a duration of 3 years.

**ELIGIBILITY**

Proposals may only be submitted by the following:

- Universities and Colleges - Universities and two- and four-year colleges (including community colleges) accredited in, and having a campus located in the US, acting on behalf of their faculty members. Such organizations also are referred to as academic institutions.
- Non-profit, non-academic organizations: Independent museums, observatories, research labs, professional societies and similar organizations in the U.S. associated with educational or research activities.
- State and Local Governments: State educational offices or organizations and local school districts.

Individuals are limited to participating as PI or Co-PI in no more than two (2) proposals submitted to a single deadline in response to this solicitation, although an individual may participate in additional proposals as Senior Personnel. No exceptions will be made.

**PROGRAM SUMMARY**

The Computing Education for the 21st Century (CE21) program aims to build a robust computing research community, a computationally competent 21st century workforce, and a computationally empowered citizenry. In this undertaking, there are three interrelated challenges: the significant underproduction of degrees needed for the computing and computing-related workforce, the longstanding underrepresentation of many segments of our population, and the lack of a computing presence in K-12. In aggregate, CE21 projects will contribute to our understanding of how diverse student populations are engaged and retained in computing, learn its fundamental concepts, and develop computational competencies that position them to contribute to an increasingly computationally empowered workforce. CE21 thus supports efforts in three tracks:
The National Science Foundation (NSF) Computing Education for the 21st Century (CE21) program aims to develop a research base for computing education. Projects may conduct basic research on the teaching and learning of computational competencies in face-to-face or online settings; they may design, develop, test, validate, and refine materials, measurement tools, and methods for teaching in specific contexts; and/or they may implement promising small-scale interventions in order to study their efficacy with particular groups. Efforts can focus on computational thinking as taught in computing courses or infused across the curriculum, they can target students or their teachers in informal or formal educational settings, or they can address any level within the K-16 pipeline, from elementary school through high school and college. CER projects will be funded at a maximum of $600K over a duration of 3 years.

Track 2: CS 10K proposals will aim to develop the knowledge base and partnerships needed to catalyze the CS 10K Project. The CS 10K Project aims to have rigorous, academic curricula incorporated into computing courses in 10,000 high schools, taught by 10,000 well-trained teachers. CS 10K proposals can address a wide range of needed activities, including the development of course materials, pedagogy, and methods courses, as well as professional development and ongoing support for teachers, approaches to scaling, best practices for increasing the participation of students from underrepresented groups, and strategies for building K-12, university, and community partnerships. CS 10K projects will be funded at a maximum of $1M over a duration of 3 years.

Track 3: Broadening Participation (BP) proposals will aim to develop and assess novel interventions that contribute to our knowledge base on the effective teaching and learning of computing for students from the underrepresented groups: women, persons with disabilities, African Americans, Hispanics, Native Americans and indigenous peoples. Proposed interventions should be designed to engage and retain students from these groups and, at the same time, to increase their knowledge of computational thinking concepts and skills. BP projects will be funded at a maximum of $600K over a duration of 3 years. Note: BP proposers are encouraged to leverage the resources provided by the existing BPC-A Alliances and to develop interventions that, if proven successful, could be implemented within a BPC-A Alliance. See http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503593&org=NSF

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The scope of the CE21 program is intentionally broad. It encompasses educational research, engagement and retention activities; and the teaching and learning of computational competencies in both disciplinary-based computer science classes, as well as infused across the curriculum, in both formal and informal educational settings; and is aimed at students, as well as their teachers. Most CE21 proposals will need Institutional Review Board (IRB) approval from the participating institutions before an award can be made. The sharing and dissemination of CE21 project outcomes will be accomplished in part through strategies proposed by each individual project, and, in part, through the coordinated efforts of CE21 PIs who will be required to participate in and provide data to enable program-wide evaluation.

The CE21 program seeks to build on promising practices, lessons learned, and research outcomes generated from the agency's ongoing investments in CISE Pathways to Revitalized Undergraduate Computing Education (CPATH), Broadening Participation in Computing (BPC), Discovery Research in K-12 Education (DR K-12), the Math and Science Partnerships (MSP), Cyberinfrastructure-TEAM (CI-
National Science Foundation (NSF)

Computing Education for the 21st Century (CE21)


TEAM), Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics (TUES), and Research and Evaluation on Education in Science and Engineering (REESE) projects.

The CISE community is encouraged to apply, as appropriate, to the related programs in the Directorate for Education and Human Resources (EHR). These include DR K-12, MSP, TUES, and REESE, but also Innovative Technology Experiences for Students and Teachers (ITEST), and Advanced Technological Education (ATE).

*Note: This solicitation (12-609) replaces 12-527*