



Proposal Status | MAIN ▶

Organization: University of Maryland Baltimore County

Panel Summary #1

Proposal Number: 1738433

Panel Summary:

Panel Summary

Intellectual merit

This proposal seeks to develop teacher preparation materials and community structures around the existing community efforts of CS for All in Maryland. The RPP will focus on building online materials for professional development, including a course that is focused on diversity to expand access to CS for all students.

Broader impacts

This project has potential to scale up to large numbers of high school students in Maryland. The diversity course could also provide a model for other states and communities to adopt or adapt. The lack of a research design limits the ability to determine the impact of the program on teaching and learning.

Strengths

The strengths of this proposal include:

- A strong, ongoing partnership that is already in place.
- Embedded diversity training and the development of a unique diversity course to train CS teachers in addressing the needs of underserved populations.
- Strong evaluation plan for providing formative feedback on the project and qualified evaluation team.

Weaknesses

The weaknesses of the proposal include:

- The lack of a research plan. For a proposal this large, it is essential to study its effectiveness in preparing teachers to teach computer science to diverse learners.
- The proposal lacked a timeline.
- While they described strategies for addressing diverse populations they did not clearly address the demographic characteristics of the population to be served.
- The researchers did not provide data or findings from the current and previous work being cited.

Competitiveness rating

LOW COMPETITIVE

Summary

This program has a strong partnership and ambitious goals. It does have a qualified team to carry out the work, however, the lack of a strong research design makes it difficult to determine the intellectual merit of the project.

This summary was read to the panel and the panel concurred that it accurately reflects the panel discussion.

Panel Recommendation: Low Competitive

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**Proposal Status** | MAIN ▶**Organization:** University of Maryland Baltimore County**Review #1**

Proposal Number: 1738433
NSF Program: STEM + Computing (STEM+C) Partnerships Program
Principal Investigator: desJardins, Marie E
Proposal Title: Collaborative Proposal: Growing and Sustaining CS for All in Maryland
Rating: Very Good

REVIEW:

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

The proposal seeks to develop teacher preparation materials and community structures around the existing community effort of CS for All in Maryland. The RPP will focus on building online materials for PD, including a course that is focused on diversity, to expand access for teacher professional development training.

The proposal clearly identifies the current landscape of efforts in Maryland supporting the expansion of CS. The RPP has had success in creating partnerships between researchers, practitioners, and policy makers to expand the access for CS education in K-12. The early AP CSP statistics are promising, but still show a gap in access for traditionally underrepresented groups.

The proposal presented the number of teachers earning CS endorsements in table one of the narrative. It was interesting to see that the number of teachers receiving endorsements stayed relatively consistent despite the efforts across the state to build capacity.

The proposal seeks to translate the CS Matters PD into a hybrid model that shifts several of the face-to-face PD sessions into an online forum, thus allowing for scale opportunities that are challenging with the current face-to-face model.

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

The broader impacts focus on sustainability for future teacher access to materials to expand CS in the future. Additionally, the proposal addresses creating a course that addresses supporting teachers understanding diversity and access in computer science. The proposal would benefit from additional information about the current diversity of Maryland students engaged in computer science, both to establish a baseline and convey the broader impacts possible in the scope of the project.

Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable

The proposal clearly articulates the creation of an online course that focuses on professional learning for teachers around creating an inclusive classroom. The course is in response to current implementation data that shows room for improvement, and is built upon a four unit approach that addresses multiple aspects of diversity inclusion. The proposal doesn't clearly address the diversity of the students to be served, as the teachers are yet to be identified. It would be helpful to have a better articulation of data relative to the current implementation with teachers to understand the student population being served.

Summary Statement

This proposal looks to expand on current efforts for CS for All in Maryland, specifically looking at evaluation of the current RPP and how the community can develop resources to support CS expansion. The proposal calls for continuing current services for teacher development by creating a central clearinghouse, as well translating the CS Matters teacher training for AP CSP into an online course, and finally developing a course for teacher professional learning around diversity. The proposal clearly articulates current efforts, but would benefit from additional details about the current student population (both make-up and those served currently in CS for All) to help detail the broader impacts.

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Organization: University of Maryland Baltimore County

Review #2

Proposal Number: 1738433
NSF Program: STEM + Computing (STEM+C) Partnerships Program
Principal Investigator: desJardins, Marie E
Proposal Title: Collaborative Proposal: Growing and Sustaining CS for All in Maryland
Rating: Good

REVIEW:

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

Strengths:

- Researching a) how to sustain RPP under changing circumstances, b) how teachers can increase awareness of diversity issues, and c) long-term impacts of PD and RPP on teachers
- Teacher preparation, community-building, and dissemination.
- Develop a hybridized version of CS Matters AP CS principles Professional Development
- Create a new online course for teachers on diversity on computing
- Leverage on prior work (teacher professional development, Many HSs have a course counting towards technology and math education graduation,
- Strong team with Co-PIs representing different sectors
- Want to scale up the current effort to the entire state of Maryland
- Employ professional evaluators (SageFox and Maryland Longitudinal Data Systems)

Weaknesses:

- Good partners (Project Lead the Way, Code.org, ECS, CodeHS), but few letters attached
- It lists several research questions but there is no plan is included for educational research.
- This is much like an outreach project, similar to a Math Science Partnership (MSP) that the PI has directed in the past decade.
- Although two professional evaluator companies are listed, the evaluator plan needs further details.
- Timeline of activities is missing

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

Strengths:

- Scaling up the current effort to the entire state of Maryland
- Attention to women and minority students
- Online CS Matters teacher training and PD clearinghouse, Diversity in Computing course
- Consolidate efforts through Maryland Center for Computing Education
- A self-sustaining infrastructure paid by local PD funds
- Dissemination via workshops at national conferences (CSTA, SIGCSE)
- Already has a RPP of higher-education, school districts, and Maryland State Education Department which has 40 members of educational organizations, corporations and nonprofits.

Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable

Summary Statement

This is a great proposal but is missing some elements such as a educational research plan. Perhaps, it is considered as a scale-up project but still needs to examine ways about scalability. It has an evaluation plan, but that is not the same as research.

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Proposal Status | MAIN ▶

Organization: University of Maryland Baltimore County

Review #3

Proposal Number: 1738433
NSF Program: STEM + Computing (STEM+C) Partnerships Program
Principal Investigator: desJardins, Marie E
Proposal Title: Collaborative Proposal: Growing and Sustaining CS for All in Maryland
Rating: Good

REVIEW:

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

Strengths: This collaborative proposal from 3 universities in MD is for expanding their current CS education in P-20. There is a strong foundation of work that had already been done and a strong history of collaboration. A new Maryland Center for Computing Education will be the centerpoint of the new work. The goals are clear ù teacher prep, community building, and dissemination. There are four well-planned activities for high school CS education. Rather than the 'one size fits all' model, this project will base PD on teacher needs. A clearinghouse for teacher prep will coordinate school needs and teacher needs, and identify and work to fill gaps in existing offerings and activities that will lead toward their state-wide access goal. The aim is to scale PD and CS instruction from the previous work to all districts in MD. Modifying PD to a hybrid distance delivery system will be done to reach rural districts. The plan for the project is clear and reasonable with goals, activities and metrics articulated.

The research questions about scalability and long-term impact are important in the field and findings could be an important addition to the knowledge base in CS education.

Weaknesses: An important question that is not considered in this plan is the impact of the program on students, student retention in the CS course sequences, and the extent to which the program reaches all students. This research and impact consideration is omitted from the articulated plans.

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

Strengths: The partnership network will be intentionally organized to be sustainable and permanent; there are specific plans to reorganize the current structure to attain this goal. The evaluation plan addresses the RPP model in a systematic way; the evaluator is external and highly qualified.

Weaknesses: More data about the impacts of the current work (which is being replicated and expanded) would be helpful in this proposal. The collaboration plan is somewhat weak: it lacks a timeline and it is not clear who in the broad network will do the components of this ambitious project. There is no progress evaluation to track movement toward and completion of project goals. The evaluation does not address the project goals of scalability and sustainability, nor is there a research plan to assess this important aim of the project.

Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable

A course will be developed for teachers on diversity in computing to prepare teachers to meet the needs of diverse student populations. This course will also include culturally relevant teaching practices. In addition, the flexible PD formats are designed to reach rural and low SES schools, which have a high percent of minority students.

Summary Statement

This ambitious and well-planned project is built on much previous work and the activities are integrated into the overall ongoing CS program in the state. The partnership includes many stakeholders who have been working together on this issue. Citations are provided to rationalize the work planned. Sustainability is addressed systematically and the evaluator will assess the development of the partnership, which is key to the sustainability plan. The professional development is well planned and includes important elements such as mixed mode delivery and culturally relevant teaching practices. The lack of a research plan to study the intermediate impact of the program on teachers and students and evaluate their primary goals of teacher pep, community building and dissemination lessen confidence that this project will produce research findings that contribute to the field and that the project will have a evidence-based model for broader dissemination and impact.

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**Proposal Status** | MAIN ▶**Organization:** University of Maryland Baltimore County**Review #4**

Proposal Number: 1738433
NSF Program: STEM + Computing (STEM+C) Partnerships Program
Principal Investigator: desJardins, Marie E
Proposal Title: Collaborative Proposal: Growing and Sustaining CS for All in Maryland
Rating: Very Good

REVIEW:

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to intellectual merit.

This proposal has two goals: teacher preparation and community building. The proposers have been working together for several years now and have strong RPP.

The team is well qualified to do the work as evidenced by their successful prior work, which this project will build upon. It builds upon a strong broad-based partnership that is in place in Maryland as well.

The RPP is sufficiently diverse to support the work and insure that it receives the support that is needed for successful implementation

The evaluation team for this grant is highly qualified and has a great deal of experience evaluating this type of partnership. The evaluation plan is also very good and will ensure that the research questions are addressed and answered.

The Data Management Plan is strong and comprehensive.

In the context of the five review elements, please evaluate the strengths and weaknesses of the proposal with respect to broader impacts.

This project has potential to reach large numbers of teachers in Maryland. It can serve as a model for other states wishing to provide professional development in CS to teachers in a variety of ways.

The community-building goal is a strength as well. It is enhanced by the leadership of a state level organization (university system office) and the strong partnership with universities, state DOE, schools and many other partners.

The embedding of diversity, equity and access throughout the professional development along with the unique course in diversity that could have an impact on teachers practices in CS (and their other courses) and contribute to the increase of underrepresented students in CS. This could also be a model for other institutions and states as they attempt to increase the diversity in the CS classes.

Please evaluate the strengths and weaknesses of the proposal with respect to any additional solicitation-specific review criteria, if applicable

The project team plans to develop a special diversity course for training CS teachers in addition to embedding diversity training throughout the rest of the curriculum. This course will not only help teachers understand the characteristics and needs of underrepresented groups but provide them with the skills for addressing them.

Summary Statement

This is a strong proposal that is ambitious but appears to have the partners and resources to carry it out.

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