

### 3.3 Objective 2– Faculty development

While several national CURE programs have targeted two-year colleges, the experiences of students and faculty at these institutions have not for the most part been published in the literature. Dolan identified this as a major shortcoming in our current knowledge base due to the fact that “students and faculty in institutions with varied infrastructures for research and for teaching innovation are likely to experience more of the challenges and barriers associated with CURE instruction” [Dolan 2016]. Wolkow et al. compared CURE implementation at a two-year college and a research university, reporting that significant adaptation was necessary for both students and faculty in the two-year college to have a positive CURE experience [Wolkow et al. 2014]. Such findings justify the inclusion of a faculty development activity module in our proposed project.

Effective faculty development programs include the following components: sufficient duration of intervention (enabling multiple opportunities for active learning), concepts building on learning theory and instructional design, availability of supportive expert trainers throughout the intervention, specific and motivating incentives, and an evaluation process integrated into every stage of development [Giersh & McMartin 2014]. In line with these recommendations, we will incorporate these best practices as we develop our faculty development program.

During the summer of 2024 five faculty members from both traditional (e.g. biology) and less traditional STEM disciplines (e.g. linguistics, behavioral sciences) will participate in a faculty development program series led by the PIs, with virtual and in-person meetings. The workshop will consist of the following activities: (1) Reading and discussion of articles selected by the PI and co-PI on how to successfully implement a CURE into an existing course, focusing on teaching through data-centric research; (2) CURE creation through selection of a research project, its trial implementation using INTREPID, and development of formative course assignments; (3) Establishing a community of practice that will provide feedback, exchange ideas, comment on each other’s work, and share resources on a CUNY supported platform, the widely-used CUNY Academic Commons; (4). Development of an action plan by the faculty member to expand their CURE to a 9-month URE, the K-CORE bootcamp, for which they will serve as mentors; (5) Establishing criteria and goals for awarding students participating in (C)UREs with Research Experience Level 1 and 2 badges of achievement, including a common rubric for determining if students meet the necessary competencies (see Section 3.4 for a more detailed description).

Five additional faculty members will join the team each year for a total of 15 faculty by the end of the three years of the project. Throughout the three years of funding, participating faculty will engage in regular meetings and receive guidance from other faculty participants. Each faculty cohort will be encouraged to expand CUREs into other courses they teach, using what they have learned from the workshop and through their implementation process. This will help build the research culture of KCC and expand our repertoire of redesigned courses.

It is important to note that unlike many community colleges, **KCC requires faculty to conduct scholarly research leading to peer-reviewed publications for reappointment, tenure and advancement.** Dolan reports faculty have a broad range of goals for engaging in CUREs [Dolan 2016], such as the potential to integrate their teaching and research; the positive influence they have on their promotion and tenure; the opportunity to publish both science and education papers; broaden the impact of their research, identify; recruit, and train students to join their labs as interns or research volunteers; and general benefits to their own research programs [Fukami 2013, Lopatto et al. 2014, Shortlidge et al. 2016]. KCC’s culture of research (embodied by the educators, staff, and students involved CUREs, K-CORE and other UREs, and INTREPID faculty training program) will enable all of these goals for participating faculty, including the recognition of their participation in this project with letters signed by the Dean of Faculty and the Provost, which are used in promotion and tenure dossiers. Through this proposal, faculty will be compensated for their participation in the faculty development experience and will have access

to funds for research supplies. Since faculty mentoring students on research projects is going to be an important component of this culture, after the funding period KCC will compensate faculty working with students through this project's URE, K-CORE, one hour of reassigned time per year.