PROJECT SUMMARY

Overview: At Elmhurst University and similar small, private institutions, part-time instructors teach introductory STEM courses, positioning these faculty to play an essential role in removing equity gaps and increasing student success in STEM. However, part-time faculty are associated with lower first-year persistance[1–4] and lower graduation rates,[5,6], and we have little information about what part-time faculty do in the classroom and how this relates to student learning.[7,8] Few STEM education reform efforts include part-time faculty, and those that do, tend to focus exclusively on pedagogy. However, studies investigating the needs of part-time faculty stress the need for collaboration, more awareness of campus resources and changing policies, and a desire to be included in institutional efforts.[9] Elmhurst proposes an NSF IUSE Institutional and Community Transformation track Level 1 project, *Adjunct Comprehensive Course to Enhance Student Success in STEM* (ACCESS STEM), to address an unmet need to develop and test comprehensive faculty development programming for part-time STEM faculty. During the program, part-time STEM faculty will participate in intensive faculty development, combining training in effective teaching practices with training about campus resources including institutional support mechanisms as well as retention and inclusion initiatives. Through this sustained multi-year professional development model, faculty will develop more student-centered conceptions of teaching, utilize evidence-based and inclusive teaching practices, and exhibit an increased sense of belonging with the college. This model, combined with a greater ability to connect students with campus resources, will enhance student success in first-year STEM courses. ACCESS STEM seeks to achieve the following objectives:

Objective 1: Develop and pilot a curriculum for part-time faculty members in STEM directed at: (1) best practices for utilizing institutional support mechanisms, (2) diversity and inclusion, (3) STEM-specific evidence-based pedagogical methods, and (4) psychological interventions based in cognitive science and positive psychology.

Objective 2: Expand institutional support for part-time STEM faculty by (1) establishing a STEM department chair workshop focused on integrating part-time faculty into departmental conversations around teaching and learning and (2) supporting sustained professional development through participation in an online course in effective teaching.

Objective 3: Investigate the impact of the proposed comprehensive faculty development model on student success and on part-time faculty attitudes and teaching behaviors by using institutional data, instructor assessments, and student surveys.

Intellectual Merit: Understanding how faculty development, situated within an institutional context, changes faculty attitudes and behaviors and leads to increased student success has been identified as an area where research is needed.[7,8,10] The knowledge generated by the proposed project will provide insight into the effectiveness of comprehensive professional development curricula on behavior and attitudes among part-time faculty and student success in first-year STEM courses. By implementing and studying this model, best practices for supporting part-time faculty in small college environments can be identified.

Broader Impacts: The proposed program will improve STEM educator development by creating and disseminating a comprehensive faculty development program for part-time STEM faculty. Importantly, ACCESS STEM will enhance effectiveness of part-time faculty, leading to increased student success (i.e., higher grades, reduced DFW rates) and persistence of students in first-year STEM courses taught by faculty members participating in the program. In particular, ACCESS STEM will benefit certain vulnerable populations that have higher DFW rates, such as Hispanic/Latino students, Black or African American students, and students with disabilities, due to enhanced interaction between part-time faculty and campus supports for students. Increasing retention and persistence of students in introductory STEM courses will contribute to the growth of a diverse STEM workforce. Successful interventions of the ACCESS STEM program will be shared with similar institutions through the Associated Colleges of the Chicago Area and nationally through publications and the university website.