

A Public Private Partnership to Increase Enrollments, Retention and Diversity in Biology, Chemistry and Biochemistry

Stonehill College, the only private four-year institution in the immediate vicinity of Brockton, MA, an economically disadvantaged urban area south of Boston, is recognized as much for its student-centered, nurturing environment as for its outstanding academic programs. Stonehill seeks to attract a larger and more diverse student population to its thriving and supportive science community. Massasoit Community College in Brockton, which serves a highly diverse student population and has a growing science transfer track, seeks to increase Biology, Chemistry and Biochemistry enrollments and retention through graduation and/or transfer for its science students. Stonehill College will partner with Massasoit Community College to increase enrollments, and subsequently graduation rates, in Chemistry, Biology, and Biochemistry through six coordinated initiatives: developing a **theme-based General Chemistry curriculum**, providing **enhanced research experiences** for faculty and students, launching **mentoring programs**, introducing a **Science Summer Bridge Program for incoming first-year students**, fostering **early exposure to science career paths**, and providing **access to college laboratories for AP Chemistry and Biology courses**.

Intellectual Merit: This project is grounded in best practices identified by NSF in promoting increased participation in the sciences. It proposes activities that while new, build on past experience and areas of strength at both institutions, from curricular reforms that will impact all science majors to focused initiatives targeting underrepresented students and community college transfers. Stonehill has an established commitment to a discovery-based approach to learning science, and to collaborative student-faculty summer research, both of which are central to this STEP project. Massasoit's success serving underrepresented and low-income students, its commitment to hiring research-active Ph.D. scientists, and its efforts to improve science advising form a sound foundation on which to build the STEP initiatives. By sharing their laboratory resources and expertise with local high schools, many of whom cannot comply with rigorous AP lab standards, Stonehill and Massasoit will increase and improve AP science offerings, and expose students to the collegiate science environment, two important gateways to science for promising high school students. The Stonehill – Massasoit STEP Partnership is unique for its focus on capacity building as well as direct impact. With STEP grant support, Stonehill will not only share its curriculum, research and career exploration resources with Massasoit, but also will also help Massasoit to build and strengthen its own mentoring, research and outreach capacities far beyond what is typically possible for underfunded community colleges. This increased capacity will have a strong impact on recruiting and retaining science transfer-track students at Massasoit well beyond the grant period, as it will assist their faculty and students to secure grant funding from a wider range of sources, including NSF.

Broader Impact: The Stonehill – Massasoit Science Partnership can serve as a model to stimulate greater cooperation between private four-year institutions and community colleges toward preparing a larger and more diverse science workforce. The greatest strengths of Stonehill institutions like it are their focus on effective undergraduate education and the caring, supportive environment they provide. A disproportionate number of students who pursue advanced study come from institutions like Stonehill. Stonehill's general retention rates and four-year graduation rates consistently exceed 80%. Private institutions also tend to have greater resources available than publicly funded community colleges do. Given that the majority of both Stonehill and Massasoit graduates stay in Massachusetts or in the Northeastern United States where the scientific and biotechnology sectors are particularly strong, increasing the number of Biology, Chemistry and Biochemistry graduates at the two institutions will make a significant impact on workforce development.