Abstract
The Northeastern University Science, Technology, Engineering, and Mathematics Talent Expansion Program University Partnership (STEP-UP) is a collaborative effort between Northeastern University’s STEM departments, two NSF-supported Research Centers (Gordon CenSSIS and the Center for High Rate Nano-Manufacturing) and three Community Colleges: Mass Bay Community College, Middlesex Community College and Northern Essex Community College.

Building a STEM Partnership
• Lead faculty at each institution have begun meeting to align courses and course requirements in order to enhance the STEM pathways, including the development and reform of introduction to engineering courses.

Developing the Partner Faculty Network (PFN)
• STEM faculty across institutions continue to build a network through various meetings and online resources via a Group Page.

Highlights/Impact

Immersion in the Research Environment
• Annual “How People Learn” seminars were held beginning in 2007-2008. Over 45 faculty have participated in the sessions that have been hosted by Northeastern University and MassBay and Middlesex Community Colleges.

• Three partnering Community College faculty participated in the Research Experiences for Teachers program at Northeastern University. Two of the faculty worked with CHN.

• Three community college students participated in the Research Experiences for Undergraduates Program at Northeastern University, affiliated with Gordon CenSSIS.

• MassBay began hosting STEM Seminars to introduce students to the possibilities of a STEM. NU GK-12 and IGERT fellows are presenting.

Academic Mentoring and Support Programs
After attending a training in Supplemental Instruction, Northern Essex Community College has begun to pilot the program. The support program will target traditionally difficult gateway courses and will utilize successful students as “SI Leaders” to run the support program.

Bridge Programs
Northern Essex and Middlesex Community College began Bridge Programs designed to support students academically and socially.

Next Steps

Expansion of Research Experiences
• Former REUs have given presentations regarding the program and are encouraging Community College student participation in the REU program supported by Gordon CenSSIS.

In addition, increased experiences for undergraduates and faculty (RET) are available through the Awareness and Localization of Explosives-Related Threats (ALERT) Center.

Bridge Programs
• Share best practices between Summer Bridge Program and implement in interested Community Colleges.

• Develop a Transfer Bridge Program. This program will aim to ease the transition from a 2-year institution to the 4-year institution in order to increase rate of transfer as well as retention once in the 4-year institution.

Increased Course Collaboration
• A Course, Curriculum, and Laboratory Improvement (CCLI) grant has been submitted in collaboration with CenSSIS/ALERT faculty in an attempt to replicate successful NU engineering design aspects at partnering community colleges.

Using research as the catalyst for engagement, Northeastern University’s STEP-UP is:
1. Creating a sustainable STEM partnership between Northeastern University’s STEM departments and partner Community Colleges by leveraging collaboration with Northeastern University’s two partner research centers.

2. Creating a Partner Faculty Network (PFN) with representatives from all stakeholders.

3. Providing Community College faculty the opportunity to immerse themselves in the research environment of the partnering research Centers through:
   • Seminars;
   • Cross-Institutional visits;
   • Participation in the Research Experiences for Teachers Program (www.ret.neu.edu).

4. Providing community college students access to research laboratories through expansion of summer experiences (Research Experiences for Undergraduates program) and cross-institutional visits throughout the academic year.

5. Replicating Northeastern University’s Summer Bridge Program at interested Community Colleges and developing a Transfer Bridge Program for Community College students transitioning to Northeastern University.

6. Providing academic mentoring and support. Identifying promising practices and provide professional development opportunities for all partners.