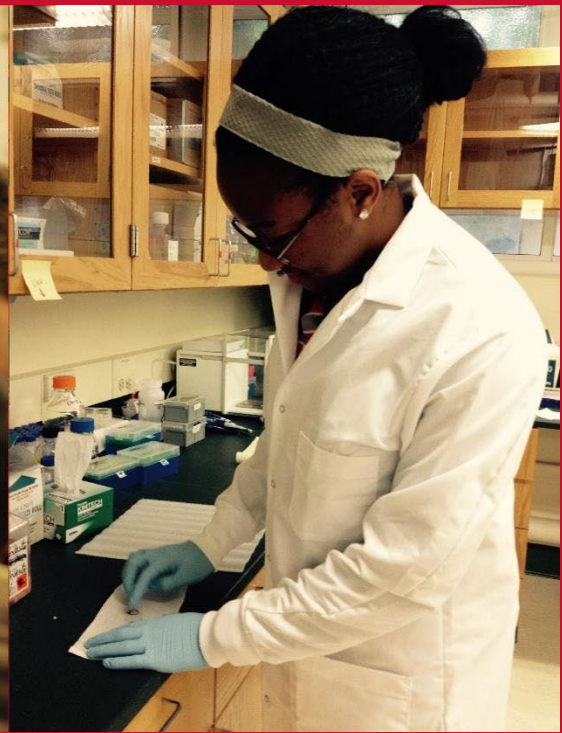




# Northeastern University Michael B. Silevitch and Claire J. Duggan Center for STEM Education

*Building a Legacy of STEM Engagement*



## Our Vision

- *To build, support and sustain a community of individual, institutional and organizational support in STEM engagement, enrichment and persistence.*
- *To impact advancement in STEM education through expanded collaboration, mentoring and training to increase access and diversity in STEM.*
- *To increase student involvement with STEM subjects and careers by designing, implementing and supporting academic and extracurricular programs in STEM fields.*



## MISSION

*The Center for STEM Education at Northeastern University seeks to build and support a community of educators, researchers, and students with the collective goal of strengthening the K-20 STEM (Science, Technology, Engineering, and Mathematics) educational ecosystem.*

## BROADER IMPACT K-12 INITIATIVES

The Center for STEM Education works in collaboration with 50+ faculty and 75+ undergraduate and graduate student affiliates annually to design and deliver multiple Broader Impact efforts. These initiatives reach a diverse audience of students (~1500 K-12 students each year), providing day-long and multi-week STEM experiences in addition to supporting and sustaining long-term relationships with those impacted by these program efforts.

**STEM Field Trips** [2007-present] are offered throughout the academic year for 4<sup>th</sup>-8<sup>th</sup> grade students, reaching approximately 750 students annually. Teachers bring their students to NEU's campus for a full day of STEM lessons and activities. Assisted by our undergraduate and graduate students, these offerings provide an early college experience and engineering exploration. Teachers overwhelmingly indicated their satisfaction with the field trip series and 100% of surveyed teachers stated they would participate again.

**Building Bridges** [2010-present] is an annual event for high school students, a full day of interactive engineering activities to help students understand the various engineering disciplines, led by College of Engineering faculty and students from each of the engineering departments. Topics covered have included Designing Earthquake Resistant Buildings, Polymeric Hydrogels to Improve Life Quality, and Computing Pi with Parallel Computing.

**Engineering Explorations** [2018-present] is an engineering introduction-program for 4<sup>th</sup>-6<sup>th</sup> students of NEU affiliates (faculty, staff, workers, and alumni), featuring 4 days of hands-on engineering activities and lab visits to showcase engineering fields and celebrate National Engineers Week.

### Summer STEM Programs

We currently offer two summer programs for students, reaching approximately 35 students annually through these initiatives and as of 2024, almost 1500 people have participated in one of our summer program offerings. Past offerings have included NEU Summer STEM Program (2006-2019): a 2-week STEM program for middle schoolers; REU-Power (2018-2022) and REU-D3 (2016-2019), 10-week NSF REU-sites; GE Girls (2017-2018), a 2-week STEM program for middle school girls funded by GE; Imagining the Future of Transportation (2016-2016), a 2-week transportation-focused STEM program funded by MassDOT; and RET (2006-2012), a 6-week summer research program for high school teachers.

**Young Scholars Program (YSP)** [1989-present] offers future scientists and engineers a unique opportunity for a hands-on, six-week, paid research experience while still in high school (rising seniors). Students experience college life, conduct laboratory research, and explore career options via faculty research seminars and industry visits.

**REU-PATHWAYS:** [2022-2025] is a paid 10-week summer research experience with professors across the College of Engineering. This REU focuses on skill development to support long-term success of community college students and is a non-residential program exclusively for community college students, with a focus on AI/machine learning, and smart materials/infrastructure/health.  
(NSF #2150417, P.I. Ibrahim Zeid, Co-P.I.: Claire Duggan)

## One Day Events

We offer additional one-day events to engage children and their families in STEM. In addition to those listed below, we have attended/offered activities at the Red Sox STEM Day, MA Teacher STEM Fair, Cambridge Science Festival, SPARK STEM Day, and more.

**BPS: STEM Leaders of Tomorrow** (2024-present) is a day of hands-on lessons taught by STEM organizations from the Boston area to visiting BPS high school students from schools with less resources.

**Engineering for Everyone Expo** (2017-present) is a public expo for K-12 students, families, and teachers hosted annually to conclude National Engineers Week, in which NEU student organizations and volunteers provide tabletop STEM activities for visiting students.

**BPS Science and Engineering Fair** (2007-present) is an annual science fair for Boston Public School middle/high school students. The Center helps recruit judges and runs a STEM expo as part of this fair. Since NEU joined in the organization of the fair, over 4500 students have participated.

The center also helps run **Faculty Outreach Programs**, providing letters of collaboration, supporting curriculum design, managing paperwork, and recruiting participants. Programs we've helped with include but are not limited to the Genetics Afterschool Program (Henzy), Robotics Afterschool Program (Platt), and Paper Birds Competition (Ramezani).

## Other Programs

**UPLIFT** [2020-present] is an academic-year research program for first year CoE students - first semester students attend faculty seminars and second semester they participate in weekly in-lab research. 151 students and 70 faculty have participated over the four years of the program.

**STEMout** [2016-present] is the Center's directly affiliated NEU student organization, which creates stem activities and provides additional volunteering opportunities for interested students through a library and middle school afterschool program.

## CURRENT AFFILIATED GRANT EFFORT

**Engineering PLUS** [2022-present] is an NSF-INCLUDES program that aims to build a system and a network to increase engineering degrees among women and BIPOC nationally. As part of this program, the Center for STEM Education leads the coordination and implementation of **stEm PEER Academy**, a 2± year professional development and research experience to support the design and implementation of evidence-based practices that support the recruitment, retention, and graduation of students in engineering at the participants' home institutions.  
(NSF #2119930, P.I. Gregory Abowd, Co-P.I.: Claire Duggan, et al.)

## PAST GRANT PROGRAMS

**S-POWER** [2017-2023] was an NSF S-STEM initiative that established an innovative scholarship and mentoring program that supported college transfer students from underrepresented backgrounds who are studying and doing research in energy. The program provided scholarships for over 220 undergraduate and graduate students from Northeastern University, Clark Atlanta University, Hampton University, MassBay Community College, Middlesex Community College, and Northern Essex Community College. This program was institutionalized by Northeastern in Fall 2021 and supports 10 new transfer students each year.  
(NSF #1564653, P.I.: Bradley Lehman; Co-P.I.: Claire Duggan, et al.)

To request more info about programs, scan this QR code

OR use this survey:

[https://www.surveymonkey.com/r/STEM\\_INTEREST](https://www.surveymonkey.com/r/STEM_INTEREST)

**N** Northeastern University  
**Michael B. Silevitch and  
Claire J. Duggan Center  
for STEM Education**



009 Dana Research Center  
360 Huntington Avenue Boston, MA 02115

Tel: 617.373.8380  
Web: [stem.northeastern.edu](http://stem.northeastern.edu)

**Claire Duggan**  
Executive Director  
617-373-2036

[c.duggan@northeastern.edu](mailto:c.duggan@northeastern.edu)

**Jennifer Love**  
Associate Director  
617-373-3551

[j.love@northeastern.edu](mailto:j.love@northeastern.edu)

