About Us

The Northern Illinois University STEAM family of programs provides interdisciplinary educational experiences that spark curiosity, creativity, collaboration and critical thinking. STEAM content experts engage and collaborate to design and implement STEAM programming that is differentiated to meet the individual needs of schools and communities.

NIU STEAM programs are within the NIU Center for P-20 Engagement and the result of 15 years of research, design, implementation and review. Our continuous improvement model results in cutting-edge programs that evolve in concert with emerging instructional changes and demands. Our programs cover everything from individual skill development to massive community involvement projects. NIU STEAM programs reach urban, suburban and rural schools, and NIU STEAM is active in local, regional, state, national and international communities. These experiences have resulted in a program philosophy dedicated to ensuring high achievement that embraces cultural diversity and is driven by the desire to establish educational equity through high-quality education programs for all students.

Our Approach

Our approach emphasizes applying knowledge to real-life problems and societal issues. We want learners to develop an enthusiasm for learning through collaborative hands-on experiences that build STEAM content knowledge, encourage curiosity and foster creative thinking. Our programs include activities designed to help learners experience productive struggle and become comfortable with the idea that failure is a positive and essential part of learning.

The NIU STEAM programs provide students, educators and community members with experiences that increase knowledge and skills while inspiring curiosity, creativity and collaboration. There are six content components of our framework, called catalysts, and these catalysts generate three tiers of impact. Each catalyst is identified in research and our practice as essential to effective systemic program improvement and successful development of a STEAM (Science, Technology, Engineering, Arts, Mathematics) culture. Read more about our catalysts and tiers of impact in our Framework Document.

Cycle of Continuous Improvement

NIU STEAM will establish an ethos of data-informed and evidence-based continuous improvement throughout the school with a continuous improvement cycle aligned to the Illinois Balanced Accountability Measure (IBAM) Quality Framework. We believe that learning – much like problem solving, design and creative expression – is an iterative process. Learning through inquiry, exploration, creation and failure is not a discrete event, but a repeating process. The four elements in NIU STEAM’s continuous improvement cycle are the same four elements in the NIU STEAM Design Cycle. Applying
continuous improvement throughout the work, whether in a lesson or classroom, ensures that the project is implemented with fidelity and guided by data-informed, evidence-based continuous improvement. The elements for continuous improvement are defined below.

1. **Ask and Define** – We ask questions to understand, clarify and define our purpose and set goals. This is done through a needs assessment process that drives goal setting and determines outcomes.

2. **Plan and Apply** – With our goals in mind, we plan actions that include a time for reflection and monitoring as the plan unfolds throughout the project.

3. **Create and Observe** – Creating detailed actions that include timeline, people responsible and metrics to measure ensure that implementation will be ongoing and not stall due to indecision or lack of clarity. Within those actions are opportunities to observe and/or reflect on the quality and fidelity of the implementation.

4. **Evaluate and Improve** – We evaluate, using our observations, to identify strengths, weaknesses and opportunities to improve. We begin the cycle again by asking the next set of questions that will continue to guide improvements.

At the center of this process is **Share and Collaborate**. Each team member brings unique skills and knowledge that can assist in developing outcomes. Collaboration, sharing and listening to feedback while brainstorming, designing and creating can inspire new ideas.

NIU STEAM is committed to an iterative process throughout all programming, and this ensures that there is a continuous improvement approach to all of our work. Our commitment is to work together to change the lived experience of members of your program and community.

**Our Reach**

NIU STEAM works with more than 15,000 K-12 students and almost 20,000 community members each year. Our large-scale projects include a full day, free community STEM Fest that highlights more than 100 NIU, regional and corporate exhibitors in STEM fields, offering hands-on activities for STEM fans of all ages. We have more than 500 students in STEM/STEAM residential and day camps on campus each summer.
During the year we also work with more than 2,500 K-12 teachers and administrators in skill-building activities that range from a regional STEM conference with more than 100 participants, to a recent grant-funded series of 125 hours of professional learning sessions provided to more than 160 teachers. We also have the privilege to work directly with teachers, offering individual classroom coaching across 12 districts, and we have more than 300 educators participating in community-building and sharing in our online MOODLE. Our online community has access to more than 300 original online full-unit and mini STEAM lessons aligned to standards and piloted by teachers.

We collaborate with more than 100 NIU faculty members who share their research, expertise and passion for STEM/STEAM and help us bring together approximately 1,500 NIU students, as participants, leaders, camp counselors, mentors, student workers and grad assistants.

Our non-grant annual budget exceeds $1.8 million annually and our grant awards exceeded $3.6 million in 2019.