Interdisciplinary Science and Engineering Partnership (ISEP)

Young minds soar when research scientists and community partners unite to bolster science education. Teachers gain new skills and knowledge to share in the classroom. Students benefit from hands-on learning and exposure to interdisciplinary research and problem-solving.

CORE PARTNERS:

- University at Buffalo
- Buffalo Public Schools
- Buffalo State College
- Buffalo Museum of Science

FOR MORE INFORMATION ON ISEP, VISIT:
http://isep.mspnet.org

SUPPORTING PARTNERS:

- Roswell Park Cancer Institute
- Hauptman-Woodward Medical Research Institute
- Praxair Inc.
- Western New York Service Learning Coalition
- Buffalo Public Schools District Parent Coordinating Council

Project Duration: Five years

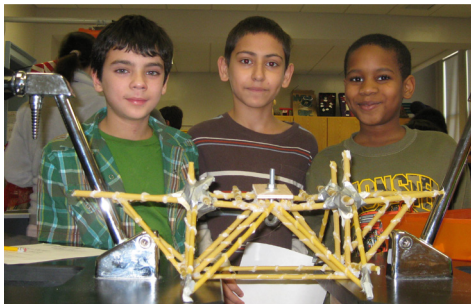
Schools Served: 12

Teachers Served Each Year: Up to 62

Total Students Served: Approximately 3,000

Prior Grant Support Provided By:

- The John R. Oishei Foundation
- First Niagara Bank "Mentoring Matters" Program



ABOUT ISEP

A coalition of partners in Western New York State has received a five-year, $9.8 million grant from the National Science Foundation (NSF) to expand the Interdisciplinary Science and Engineering Partnership (ISEP). Supported with resources totaling more than $10 million, this promising program aims to transform how science is taught in the Buffalo Public Schools. The focus of the ISEP is the critical middle school experiences of students in science and engineering, as they transition to high school. The project uses an innovative approach to teacher professional development among high-needs urban schools (including "feeder" middle schools and their corresponding high schools). This is accomplished through courses and interdisciplinary research experience, development of science and technology classroom materials aligned with state science learning standards, and inquiry-based curricula. Sample research topics include nanotechnology, molecular biology, pharmacokinetics, and response to natural and manmade emergencies—to name just a few.

The ISEP also combines novel mentoring approaches and expanded Professional Learning Communities (PLCs) to build leadership and resources for improving science education. The PLCs cultivate mentoring relationships involving middle and high school teachers and students, UB and Buffalo State College science/engineering/technology faculty, education faculty, undergraduate students and graduate students, volunteer professionals and parents.

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Buffalo State State University of New York

"The partnership exposes students to contemporary issues in science research and provides hands-on laboratory experience and mentorship. ... Many students participated in internships this summer and conducted experiments that expanded their learning experiences beyond the classroom. These unique experiences expose them to potential careers beyond college."

Rose Schneider, *Principal, Seneca Math Science Technology Preparatory School (referring to a pilot program that launched the current ISEP)*

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DISTINCTIVE FEATURES

> Serves students and tracks their progress during the pivotal transition from middle to high school (a time when many young people lose interest in science).

> Emphasizes engineering design activities, as well as interdisciplinary science inquiry.

> Develops Professional Learning Communities and opportunities to share ideas face-to-face, or through social media.

> Involves undergraduate and graduate students from UB, Buffalo State College and other area colleges, as well as volunteer faculty and science/engineering/technology professionals from the academic and corporate communities.

> Serves Buffalo's rapidly growing immigrant population, in which more than 80 languages are spoken, including students from Burma, Somalia and many other nations.

> Uses new labs and facilities through Buffalo's comprehensive school reconstruction project—the first of its kind in New York State.

"We can only imagine that we are honing the scientists of the future right here in our schools."

Amber Dixon,
Interim Superintendent, Buffalo Public Schools

ISEP Schools

	MIDDLE (K-8) SCHOOLS	
1	Harriett Ross Tubman Academy #31	Environmental Science/Engineering, Biology
2	Charles Drew Science Magnet #59	Life Sciences and Physical Sciences connected to the Buffalo Museum of Science and Buffalo Zoo
3	Lorraine Academy #72	Biomedical Careers
4	Southside Elementary #93	Environmental Science/Engineering, Biology Partnership with South Park High School
5	Native American Magnet (NAMS) #19	Environmental Science/Engineering, Biology
	HIGH SCHOOLS	
6	East HS #307	Bioinformatics, Forensic Science
7	Bennett HS #200	Biomedical, Pharmaceutical Sciences (Chemistry, Biology)
8	South Park HS #206	Environmental Science/Engineering, Biology, Green Team (Environmental) Team, AP Environmental, AP Statistics
9	Riverside Institute of Technology HS #205	Health Sciences (Chemistry, Biology)
	COLLEGE BOARD / GATES FOUNDATION SCHOOLS (6-12)	
10	MST Preparatory School at Seneca #197	Environmental Science/Engineering, Forensics, Advanced Chemistry, AP Biology, future AP Chemistry, Environmental Science and Statistics
	VOCATIONAL SCHOOLS	
11	Burgard Vocational HS #301	Physics, Auto Technology
12	Hutchinson Central Technical HS #304	Physics, Engineering; AP Biology, Chemistry and Statistics