



New Hampshire EPSCoR

Experimental Program to Stimulate Competitive Research

The Power of Outreach Partnerships

Project REIS @ UNH (Research Experience in Science)



Thirty-two students from 27 inner-city high schools in New York and New Jersey spent a week in New Hampshire in July 2008 to participate in Project REIS @ UNH, a residential Research Experience in Science program hosted by the University of New Hampshire for the Harlem Children Society (HCS).

"The experience was awesome"

"Exceeded my expectations"

The HCS Science and Engineering Mentoring Program serves students from under-resourced schools, comprising more than 300 students in the United States and an additional 300 students around the globe.

The students who attended Project REIS @ UNH focused on the biotechnology of plants, with its myriad applications and implications to the food chain, to human nutrition and medicine, to the environment and the climate, and to biofuels and energy.



"Gave me a taste of college"

"Need a longer program"

Students also were introduced to nanotechnology, space science, marine and environmental science, which are other components of an established program at UNH, Project SMART. The one-week pilot program is intended to serve as a trial for merging the programs.



Additional support for Project REIS @ UNH was provided by NH EPSCoR, NH Space Grant Consortium, NSF Center for High-rate Nanomanufacturing, Office of the Provost, the Vice Provost for Diversity, Office of Admissions, College of Life Sciences and Agriculture, College of Engineering and Physical Sciences, Office of Multicultural Student Affairs, the McNair Graduate Opportunity Program, and several members of the faculty.

Project REIS photos courtesy of Perry Smith and Lisa Nugent, UNH Photographic Services

Nanotechnology Research Experiences for Teachers (RET)

What do teachers do during the summer? Some go back to school. Since 2007, both high school and middle school science teachers have worked in laboratories at UNH, doing research alongside professors and graduate students.

They typically work fulltime for three weeks, receiving a stipend and a certificate documenting 120 professional development hours. They prepare posters that describe their research to bring back to their classrooms to educate students about nanotechnology.



Aurora Merry
Biology teacher
Salem High School

"The experiences that I have had at UNH as a scientist will be an asset to my professional career as a teacher. Over my short three week time in the lab, I was able to use the scientific method to study the fluorescence of 12 pentacene derivatives that were synthesized by members of the Miller Research Group. Fluorescence spectra often mimic electroluminescence spectra which are utilized to determine the potential utility of compounds in display technologies.

"During these three weeks, I was immersed in an individual research project with the support of Dr. Miller and members of his research group. I can honestly say that I felt like a research scientist. It is Dr. Miller's intention to include the data that I obtained in a paper. This experience is one that most high school science teachers do not have an opportunity to experience. I feel it is vital to have experiences like this as a science teacher. Science teachers inspire future scientists..."

– Aurora Merry

Jim Fabiano, a chemistry teacher, spent three weeks with undergraduate and graduate students in electrical engineering and materials sciences.

Jim Fabiano
Chemistry teacher
Newmarket Jr./Sr.
High School



Multidisciplinary learning:

"I took part in a statistics meeting which I found fascinating. I was ignorant of the process but I was able to understand how the process can vary. I would like to work with teachers from other disciplines in my school, both to help my students succeed and to incorporate other ideas from colleagues."

Collaborative learning:

"I took part in a meeting in which graduate students discussed their projects and was impressed with how they offered to help each other solve problems. I can easily bring this concept of collaborative learning into my classroom. Next year, I will have an AP chemistry class. I am working on the idea of breaking it up into four lab groups, each with their own project. Once a week we will have a class meeting."

Ideas for student projects:

- Develop an elaborate lifter system able to carry a payload, using many triangular shapes or totally different shapes.
- Produce nanotubes by electrospinning, which may involve coming to the university to use lab instruments.
- Testing materials to produce bulk metallic glass, an amorphous metal.



Jim Fabiano pictured with James Melfi, an REU student at the Center for High-rate Nanomanufacturing

– Jim Fabiano