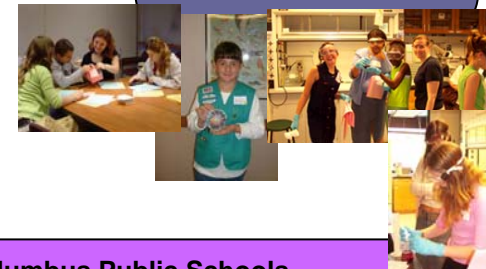


OSU-EMSI Outreach

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Diversity

OSU-EMSI has developed or sponsors programs that promote Diversity by participating in **Women in Science Day**, **Take a Daughter to Work Day**, **Young Women Empowerment Conference**, **Future Engineers' Summer Camp**, **Ohio 4-H Youth Expo** and programs with **Girl Scouts of America**. These programs allow individuals to explore science and engineering through meeting OSU-EMSI researchers, conducting hands-on experiments and/or touring laboratories.



High School

High School classes obtain laboratory tours highlighting OSU-EMSI research and instrument demonstrations. Students explore science options and seek mentorship and tutoring at OSU-EMSI as well as participate in yearlong research programs. One example of a yearlong student research project is high school junior Alex Anderson's work with Professor Patrick Hatcher and graduate student William Hockaday. They worked with the permanganate oxidation of black carbon and prospects for developing a quantitative method.



The Ohio State University Environmental Molecular Science Institute (OSU-EMSI) promotes multidisciplinary environmental research through a variety of extensive outreach programs, activities, and events designed to disseminate the results of the Institute's research. These highly recognized campus and community wide outreach programs are a result of long-term partnerships within the University and community, that develop, implement and nurture scientific and educational goals. Existing outreach programs enhance the quality of science education, knowledge and enthusiasm of K-16 students and community members as well as encourage individuals to address environmental issues and seek careers in this field.

Community

OSU-EMSI hosts **annual workshops** featuring over thirty presentations and posters. These workshops highlight current environmental and agricultural research and serve as an opportunity to exchange information and ideas for participants from the academic and non-academic communities. Scientists and engineers working with OSU-EMSI present updates on their natural organic matter (NOM) and other EMSI research. OSU-EMSI information concerning research, outreach, events, contact, publications, resources, and personnel can be found on the **OSU-EMSI Website** (www.emsi.osu.edu). This popular site containing over 400 pages went live in February 2003 and has over 5000 visitors per month.



Columbus Public Schools

The **EMSI Student Scientists' Program** introduces Columbus Public Schools' students to broad research topics—factors that affect the natural remediation of an important environmental pollutant, phenanthrene (2002-2004) and detecting soil pollution through the use of ecotoxicological earthworm avoidance tests (2004-2005)—and coached in developing their own hypotheses and experiments to address an aspect of the research topic. This program consists of the following four stages which gives students the opportunity to participate in ongoing OSU-EMSI research: 1) Planning and Materials Creation 2) Student Protocol Development 3) Experiment 4) Data Analysis & Presentation. EMSI received additional funding from the National Science Foundation in August 2003 to fund this program.



K-8

The **OSU-EMSI/ECLIPSE Partnership Program** continues to provide science mentors to 14 CPS elementary teachers as well as gives 300 fourth and fifth grade students several environmental field experiences at OSU that augment school curriculum and familiarize students with University life. OSU-EMSI researchers visit ECLIPSE classes and introduce environmental problems and careers and help students conduct their own experiments. For example, OSU-EMSI researchers help ECLIPSE students collect water samples and analyze them for environmental pollutants. Additionally, they assist ECLIPSE students in setting up earthworm avoidance experiments demonstrating how pollutants contaminate soil.



EMSI and the College of Mathematical and Physical Sciences offer the **Breakfast of Science Champions**, a program that introduces middle school children to OSU and scientists and engineers. Students enjoy breakfast and ask questions of the hosts. Following breakfast, the host scientists and engineers lead groups of students to their laboratories where they explain their work, conduct experiments and demonstrations and allow the students to perform a basic testing procedure and ask questions. The breakfast also serves as a medium to expose middle school students to a college campus and potentially develop and enhance their future academic dreams and goals.

Program Sponsorship

The **Future Engineers' Summer Camp (FESC)** is a program funded by the National Science Foundation and sponsored by OSU-EMSI designed to explore concepts from engineering and science. This free daytime program emphasizes exploring and experiencing rather than watching and listening. Female students who will enter the 8th grade in the upcoming school year are eligible to apply. Camp participants will have the opportunity to perform hands-on activities as well as meet with professional engineers, scientists, and engineering students. FESC not only provides participants with a better understanding of engineering and science but offers an opportunity to make friends that will last a lifetime!

Project SEED is a program administered by the American Chemical Society (ACS) which offers a unique opportunity for an economically disadvantaged high school student to conduct hands-on research with a scientist in a laboratory setting. Students develop relationships with scientists who present information on career paths, offered guidance, mentorship and encouragement as well as exposure to other assistance programs and preparation for college. EMSI helps sponsor this program and hosts high school students for the summer program. Two examples of student projects completed in Project SEED are "The Micheal Reaction Between 1,2-Naphthoquinone and Cysteine: Evaluating By Tetramethyl Ammonium Hydroxide (TMAH) Thermochemolysis and Gas Chromatography-Mass Spectrometry As A Quantitative Assay" and "Studies of the Selective Ionization and Water Clustering of Various Aromatic Compounds."



Teacher Workshop Program

OSU-EMSI developed the **EMSI Teacher Workshop Program** with additional National Science Foundation funding in July 2004. This program gives teachers the skills and knowledge to use a research question at the frontier of science to conduct inquiry-based lessons in their own classrooms. Each workshop is a week-long, independent unit, focusing on a single essential research question of current interest to OSU-EMSI faculty—a question at the forefront of environmental science. Teachers will leave with knowledge of cutting-edge science issues and experimental techniques and tools to have their students perform real scientific research in inquiry-based lessons. The workshops offered are "Black Carbon and the Global Carbon Cycle"; "Metal Pollution in the Environment—Transport and Effects"; "Columbus storm drains—What are we doing to our rivers?"; and "Sponging" up pollution—Can some soil types make pollution safer?"

