

ABCS Courses Taught by the Dept. of Earth & Environmental Science

ENVS 404: Lead Poisoning Prevention *Offered Fall 2009*

Despite the fact that lead has been removed from many products such as paint and gasoline, nearly 1.7 million young children have elevated blood levels, according to recent Centers for Disease Control estimates. The incidence of lead poisoning has declined over the last 10 years, but thousands of Philadelphia children still have elevated levels. Philadelphia ranks second in the country as the city with the highest number of lead poisoned children. Most at-risk are low income children living in poorly maintained homes built before the 1978 ban of lead based paint for residential use. According to the Philadelphia Health Department, there are about 1400 homes with dangerous levels of lead paint chips and dust awaiting cleanup in the city. Lead poisoning can cause learning disabilities, impaired hearing, behavioral problems and at very high levels, seizures, coma and even death. Young children are especially at risk because of their developing systems. They often ingest lead chips, dust, and dirt while playing in their home and yards.

In ENVS 404, students learn about the epidemiology of lead poisoning, the pathways of exposure, and methods for community outreach and education. As an Academically Based Community Service (ABCS) course, Penn students will collaborate with middle school teachers in West Philadelphia to engage eighth and ninth grade students in lessons that apply environmental research relating to lead poisoning to their homes and neighborhoods.



Penn students teaching 4th grade students at Drew Elementary School about lead poisoning prevention

ENVS 408: The Urban Asthma Epidemic *Offered Fall 2009*



Penn students in the Active Asthma Workshops & Sayre Student volunteers demonstrating to a 9th grade class how nutrition affects asthma.

Asthma as a pediatric chronic disease is undergoing a dramatic and unexplained increase. It has become the #1 cause of public school absenteeism and now accounts for a significant number of childhood deaths each year in the USA. The Surgeon General of the United States has characterized childhood asthma as an epidemic. In ENVS 408, Penn undergraduates learn about the epidemiology of urban asthma, the debate about the probable causes of the current asthma crisis, and the nature and distribution of environmental factors that modern medicine describes as potential triggers of asthma episodes. Penn students will collaborate with the Children's Hospital of Philadelphia (CHOP) as well as on our own student-created Active Asthma Workshops. Penn

undergraduates will teach classes on asthma to students in West Philadelphia, giving them the opportunity to apply their study of the urban asthma epidemic to real world situations and to people who are directly affected.

ENVS 407: Prevention of Pre-Adolescent Tobacco Addiction

Offered Spring 2010

Smoking kills more people in the United States each year than car accidents, alcohol, AIDS, murders, illegal drugs and suicides **COMBINED**. Approximately 80 percent of adult smokers began smoking before age 18. Every day, more than 5,000 kids under the age of 18 try their first cigarette; more than 2,000 become daily smokers. While tobacco use among high school students declined from 2000 to 2002, tobacco use among middle school students remained steady at 13 percent.

In ENVS 407, students take a multidisciplinary approach to examining the health effects of tobacco, within an environmental and public health context. Lectures and readings cover the history of tobacco, social trends, usage among adolescents and college students, pharmacology of nicotine and the resulting medical disorders, marketing, the legal battles and the tobacco settlement. Knowledge gained through class discussions and readings will be applied during fieldwork and practical experience: As an Academically Based Community Service Course, Penn students collaborate with school teachers in West Philadelphia to engage fourth, seventh, or ninth graders in exercises that demonstrate the consequences of tobacco addiction, and which will educate students in Drew, Shaw, and Sayre schools about the hazards of smoking before they begin. Additionally, students will conduct field research to assess attitudes towards and impacts of Philadelphia's recently-enacted ban on smoking in restaurants and bars.



Penn students and their team of Sayre students updating their board of tobacco facts & thoughts.

ENVS 406: Community-Based Environmental Health

Offered Spring 2010

The Benjamin Franklin Scholars course investigates contemporary health problems that are present in the urban environment that pose significant health risks, especially to children. Students will formulate a problem statement worthy of investigation, and identify the medical, ethical, and socioeconomic components that must be addressed to lessen impacts to an at-risk population. Students will work with community organizations, technical and medical experts in the West Philadelphia study area to develop viable and cost-effective alternatives, and formulate an implementation strategy. Previously studied problems include the following: Healthy Daycare Model, Improved Food Access in West Philadelphia, and Exposure to Endocrine Disrupting Compounds.