

Course Development Work:

I will need to hire one or two students to work on developing a choice lab for implementation in the spring of 2012. A brief description of this work:

The presence of lead in the soil of southern California is a well-documented fact. For the last 6 years Harvey Mudd students have analyzed soil samples from The Bernard Field Station, and the playgrounds of Vista del Valle Elementary School, Oakmont Elementary School, Mountain View Elementary School, and Sumner Elementary School. The concentrations of lead on the surface of soil particles from anthropogenic sources (mostly leaded fuels) has been verified by atomic absorption spectroscopy of suitably digested samples. We are currently developing a "Choice Laboratory" that will continue this study at a deeper level. Summer students will develop the following variations on our previous methods:

- 1) Establish a method for determining the bioavailability of lead in soil samples using modified digestion technique and atomic absorption spectroscopy.
- 2) Establish a method for determining the total lead concentration (not just the surface lead) by X-ray fluorescence spectroscopy.
- 3) Explore the feasibility of sampling at Ontario International Airport for lead determinations. (Airplane fuel still contains lead additives.)