A. Briefly describe overall research program at your laboratory. The general unifying theme in our research group is the use of green chemistry principles to improve industrial processes. The current main research areas are developing surface active materials that can be used to promote the use of biologically derived polyols in polyurethane foams, drug delivery polymer scaffolds that degrade to form biologically degradable materials, demetallization of process waste streams, and process optimization for organic intermediates industry. The group is also involved in the development of new teaching labs involving the principles of sustainability.

B. Briefly describe specific project(s) for your teacher: The major project for a visiting high school teacher would be to continue to work on the polymer drug delivery project, working to optimize the HPLC methodologies, and trying to develop a new LCMS method based on the available instrumentation. The experience will involve work in organic synthesis to form the pro-drug, polymer synthesis to modify the exiting polymer matrix to modify the drug release characteristics, and spectroscopic analysis of the products.

C. Will any other people (post docs, grad students, undergraduate students, colleagues, etc.) be involved directly with your teacher? The teacher would work with me, and the other undergraduate research students in our lab group.

D. Will you require any advanced reading/preparation for the teacher? If yes, please briefly describe. Since this research experience involves work with chromatography, an understanding of HPLC and GCMS methodology would be helpful.