

Active and Collaborative Learning Strategies for General Chemistry

Active and collaborative learning methods have been introduced into the General Chemistry Lecture and laboratory sections at GPC-Lawrenceville. Such inquiry based techniques consistent with constructionist pedagogy have shown promise in improving learning effectiveness relative to traditional object based pedagogy. Methods currently employed include POGIL, computational science, and group work. This talk will present these techniques, their current level of implementation, and a qualitative assessment of their effectiveness.

Quantitative Analysis of Divalent Metal Ions in Salad Dressing: A Problem-Based Experiment for General Chemistry

At Georgia Perimeter College, a problem based learning (PBL) laboratory was recently developed and implemented into the general chemistry laboratory. PBL is an inquiry based approach that places students in the role of investigators. The laboratory exercise is used as a means to resolving a stated problem. The task was to analyze and characterize an event and to explain how divalent metal ions in homemade salad dressing led to food poisoning. EDTA compleximetric titration methodology was employed to quantitatively analyze the metal ions in the salad dressings. Divalent metal ion – EDTA complexation thermodynamics was investigated via SPARTAN molecular modeling software. This talk describes the PBL experiment conducted, summarizes the effectiveness of the technique both in terms of the results obtained from student groups and a student perception survey.