Title: Embracing the Post-Omics Era with Computational Biology/Toxicology

Time & Location:
2:00pm, Friday, January 22, 2010
Tec 205 (Vislab), Bobby Chain Technology Building

Presenter:
Dr. Ping Gong, Senior Scientist
SpecPro Inc., Engineer Research & Development Center
U.S. Army Corps of Engineers

Abstract: Recent evolutionary advances in omics (genomics, proteomics and metabolomics) technologies have enabled the generation of high dimensional datasets in a high throughput fashion. This has made it feasible more than ever to study systematically problems associated with complicated and interrelated biological systems. At the same time, it has also become more and more obvious that biologists need help from computational scientists to handle the vast amount of data. Storage, integration, functional annotation, and statistical analysis of biological data in such a massive quantity are new challenges. In this seminar, I will discuss what computational biology/toxicology can offer in the post-omics era. Specifically, I will cover bioinformatics (sequence analysis and annotation), knowledgebase, reverse engineering for biological network inference, machine learning techniques for discovery of novel gene biomarkers, and simulation, prediction and visualization through mathematical modeling. This talk is intended to inspire computational science researchers and particularly students to get involved in computational biology/toxicology studies.