

Technical Skills Workshops

May 2012

Chemical Biology Equipment

This technical skills workshop will focus on experiment design, utilizing, and properly maintaining equipment found in the Chemical Biology Room (Kolthoff 697). These pieces of equipment include the autoclave, centrifuge, ultracentrifuge, and cell shakers. The workshop is designed for, but not limited to, students whose research work involves bacterial cell growth, protein purification, nanoparticle purification, sterile reagents for use with biological samples, and sterilizing biological waste.

Mass Spec Facility

Ultraperformance liquid chromatography-mass spectrometry (UPLC-MS) using a Waters Acquity UPLC coupled to a Waters Synapt G2 HDMS quadrupole orthogonal acceleration-TOF mass spectrometer will be the focus of this workshop. The workshop will have three parts. First, attendees will gain information about the instrument, its figures of merit, and its potential applications. Attendees will then see how samples are generally prepared and run on the instrument. Finally, the software capabilities will be displayed by analyzing the chemical signatures of different teas.

Solvent Titration

This workshop will help you in the preparation of anhydrous solvents for use in a laboratory setting. Many common organic solvents such as tetrahydrofuran, dichloromethane and diethyl ether (to name a few) are hygroscopic. If these solvents are stored improperly, water will accumulate and potentially hamper the success of your reactions. In the case of ethers, there is an additional hazard as explosive peroxides, may also be formed if the solvent is old or exposed to light and oxygen over an extended period of time. We will therefore explore various (and often complementary) methods of water removal from common organic solvents and subsequent determination of water content.

Vacuum Pumps

The technical skills mini-workshop entitled Vacuum Pumps will cover several items to familiarize oneself with vacuum pumps, as well as some general maintenance procedures. We will start by briefly discussing the different types of pumps available, pressure considerations, and applications. We will then step into some of the introductory troubleshooting and maintenance issues to consider, such as leak detection, O-Ring replacement, and oil changes. This workshop will be mostly hands-on, with oil changes performed by those in attendance. Please plan accordingly by bringing a lab coat, goggles, and gloves.