Chemistry and Biochemistry Laboratory Facilities

Mass Spectrometry and Separation Facility

The mass spectrometry and separation facility, instrumentation room is located in the Science and Technology Center 262 and houses state-of-the-art mass spectrometers for the analyses of a wide number of samples. This facility works in collaboration with and performs analysis of samples from waterways, wineries, breweries, etc. in and around the Poconos. This facility is open to all researchers on the ESU campus, PASSHE Universities, collaborators, etc.

Instruments available in our facility includes a PerkinElmer NexION 1000 ICP-MS, Agilent 6545XT Advance Bio LC/Q-TOF, Agilent 6890N GC with 5975B inert XL MSD with Gerstel Auto-sampler Agilent 7890A GC, Agilent 1260 Infinity II HPLC Agilent 1290 Infinity II UHPLC Agilent 1100 HPLC Auto-sampler, etc. It also features a PerkinElmer AAnalyst 800 atomic absorption spectrometer, Magritek Benchtop Spinsolve Carbon 43 MHz NMR and several other instruments. Measurements include, but not limited to metal ion analyses, purity of (in) organic compounds, lipids, peptide, and protein analyses, etc. For access to facilities you can contact either **Dr. Richard Kelly, Dr. René Fuanta, Dr. Michelle Jones-Wilson, or Dr. William Loffredo**.

Analytical Chemistry Laboratory

The **molecular analyses and assay development laboratory (Analytical Lab**) is located in Science & Technology room 263. They are equipped with a double distiller capable of producing analytical (18 megaohm) grade water. There are four class A fume hoods and an ADA compliant fume hood. Contact **Dr. Richard Kelly**

I**nstruments**: In addition, there are several analytical, four decimal place balances, bench top centrifuges, micropipetors, vacuum pumps, large hot plates, class A burets a drying oven and water baths. Sixteen lap top computers and several portable UV-Vis photometers are also available for use by students and faculty.

General Chemistry Lab - Science & Technology

General Chemistry Labs - The general chemistry laboratories at ESU are located in Science and Technology Center rooms 139 & 143. They are designed to accommodate a maximum of 21 students. Each lab has 7 benchtops that can support three students. Contact **Dr. Steven Boyer or Alicia Cole**

Instrumentation Used: Each bench is equipped with two monitors for molecular modeling and data collection. Eight top loading balances and appropriate glassware. Computer driven data collection apparatus is available for conductivity, atomic absorption spectra, visible-near IR spectra, current, voltage, pH, and atmospheric pressure. A computer and projector are available for instructor presentations.

General Chemistry Hood Room

The **chemical fume hoods** used for the general chemistry laboratories are located in Science & Technology Center room 140. The hood room is a highly ventilated, air-controlled facility with 8 class A hoods to contain and remove gases and fumes generated during experiments via an elaborate exhaust system. This supports and is flanked by two general chemistry laboratories. Contact **Dr. Steven Boyer**.

Organic Chemistry laboratory

The **Organic chemistry laboratory** is located in Science & Technology rooms 260 & 261. Organic chemistry is a branch of chemistry that studies the structure, properties and reactions of organic compounds, which contain carbon in covalent bonding. Study of structure determines their chemical composition and formula.

The labs are equipped with 10 hoods, IR instrumentation, convection ovens, balances, and stirrers.
Contact **Dr. William Loffredo and Dr. Steven Boyer**

Biochemistry Teaching Lab

Biochemistry Equipment Room

The **Biochemistry laboratory** is a spacious and highly ventilated workspace in Science & Technology 361-362. Some fixed features include a walk-in cold room, two class A fume hoods, and a biosafety level 2 cabinet.

Biochemistry Instrumentation: two Perkin Elmer UV-Visible spectrophotometer, two Beckman-Coulter DU640 UV/VIS spectrophotometer and an Agilent Cary Eclipse Fluorescence spectrophotometer equipped with a plate reader and micro probe. A shaker-incubator, Kodak gel imaging system, gel electrophoresis equipment, two gene mini-cyclers, transilluminators, a sonicator and several purification columns are available in this lab. In addition, there is a Beckman Microfuge 22K, Beckman OptimaMax ultracentrifuge, a Beckman Advanti SE centrifuge, a Labconco Lyophilizer and an Aktapurifier UPC 100 FPLC. Also featured are a 4oC refrigerator, a -20oC freezer, water baths and other standard equipment. For access see either **Dr. Michelle Jones-Wilson or Dr. René Fuanta**.

Advanced synthesis and reaction mechanisms is located on the third floor in Science & Technology 359. It has the same configuration as the Organic labs and some of the permanent features include six Class A fume hoods, a rotatory evaporator, a perchloric acid fume hood and a walk-in fume hood. One glove box portable hood with gas line adaptability is housed in this laboratory. A wide variety of specialty glassware and benchtop UV spectrophotometers are also available. For access, see **Dr. Richard Kelly**.

Physical Chemistry Lab – Physical chemistry is the study of macroscopic, and particulate phenomena in chemical systems in terms of the principles, practices, and concepts of physics such as motion, energy, force, time, thermodynamics, quantum chemistry, statistical mechanics, analytical dynamics and chemical equilibrium. **Instruments:** the steady and transient state analyses lab in Science & Technology 357 houses an adiabatic expansion tank, water baths, oxygen bomb, and three class A fume hoods, and a thermo adaptable UV/Vis spectrophotometer. For access see **Dr. Jon Gold**.

Chemical supply and reagent prep - this facility is located in the ground floor of Science & Technology Center. It features a highly secured and restricted chemical storage space, ventilated hoods, and distilled water system. The prep room has a student work area reserved for lab assistants. For access contact **Alicia Cole**.