CORES | Center of Research & Educational Support

School of Chemical Sciences

EXCELLENCE - From **process**, to **education**, to **presentation**

The School of Chemical Sciences at the University of Illinois at Urbana-Champaign operates thirteen facilities which offer a wide range of unique research and teaching support to students, faculty and staff members of the School and University as well as to research clients and collaborators worldwide.

Since 1927, when George L. Clark brought his unique perspective on the relationship between instrumentation and analysis to the Urbana campus, the School of Chemical Sciences has developed a long-standing tradition of providing superior service to the cutting edge resesarch conducted at the University of Illinois. This reputation is recognized in the academic and industrial worlds, both domestically and abroad.

The School of Chemical Sciences CORES (Centers of Research and Educational Support) strive to provide the most up-to-date equipment and analytical techniques to our researchers. Our service facilty directors and staff are highly specialized professionals holding advanced degrees and decades of experience in their respective fields. Their expertise serves as a resource to researchers for collaboration and assistance, serving as co-authors on publications and grants.

Cell Media Facility

491 Roger Adams Lab | Sandy McMasters | smattick@illinois.edu | 217-244-5898

The Cell Media Facility provides fresh low cost materials for the propagation of bacteria, yeast, and mammalian cells. Services include classic and custom cell culture media, solid media plates, competent cells, cryogenic cell storage, charcoal-dextran treatment of serum, and cell culture training. Instrumentation includes the Storm, a laser-based scanner for storage phosphor and fluorescent imaging. The facility also features a complete biosafety level 2 lab that can be used for cell culture research.

Computing

125A Noyes Lab | Jay Guelfi | scs-help@illinois.edu | 217-244-7515

CANS (or Computer Applications and Network Services) offers a variety of hardware, software, and personnel dedicated to the computing needs of the School and its departments. Information Technology (IT) support is available to all faculty, staff, and students, and our staff maintain a high-performance computing (HPC) cluster for parallel computing which is used in both research and instruction. Application developers create and maintain Reaction, the School's web-based internal business operations application. High-level scientific software consulting with expertise in computational chemistry and data science is also available, along with a program for making scientific software available to research groups at a lower cost.

Electronic Services

125B Noyes Lab | Danielle Gray | dgray@illinois.edu | 217-333-0865

Offers design, construction and repair service for electronic and electro-mechanical equipment. Our engineers work with clients to design and fabricate hardware that may not be commercially available. Expert technicians are available for repair and maintenance of equipment and devices used in both research and teaching laboratories.

EPR Laboratory

149A CLSL | Toby Woods | tobyw@illinois.edu | 217-300-1081

This facility provides Electron Paramagnetic Resonance (also called ESR, electron spin resonance, or EMR, electron magnetic resonance), ENDOR, and ESEEM facilities and expertise. EPR has applications in chemistry, physics, biology, and medicine: it may be used to probe the "static" structure of solid and liquid systems, and is also very useful in investigating dynamic processes. Scientists of all disciplines can visit lab and undertake collaborative or other work.

Glass Shop

114 Noyes Lab | Andy Gibbs | agibbs@illinois.edu | 217-333-3610

An on-site facility for creating or repairing one-of-a-kind glassware. Clients can work directly with a scientific glassblower to develop new designs and to make custom glassware needed for research. The facility also specializes in the repair and modification of existing glassware, often reducing cost and downtime associated with replacement of critical equipment.

Graphic Services

71 Noyes Lab | Dorothy Loudermilk | loudermi@illinois.edu | 217-244-1784

Graphic Services produces custom research graphics for publications, proposals, posters and papers. Assistance in preparing customer files to meet current journal and publishing standards is also available. In addition to research graphics, the facility provides design and production of promotional and informational posters, signage, flyers and brochures.

High-throughput Screening Facility

361 Noyes Lab | Vishnu Krishnamurthy | vkrshnm2@illinois.edu | 217-244-4198

Assists researchers in developing, optimizing and performing high-throughput screenings (HTS) of chemical libraries to identify macro-molecule effectors. The HTSF contains over 300,000 small molecule compounds. The users will have access to facility equipment including liquid handlers, plate readers, plate washer, and plate centrifuge. In addition to HTS, the facility can also assist and perform experiments in mammalian cell culture.

Machine Shop

B71 Roger Adams Lab | David Williams | scs-machineshop@illinois.edu | 217-333-4278

Builds and repairs ultra-high vacuum, high pressure, optical and mechanical equipment. The facility also assists in the design of new and custom equipment to meet research needs. The facility also operates a student shop which provides training in basic milling, drilling, lathe turning, soldering, and sawing techniques. The generation and interpretation of machine drawings are discussed as part of the training course.

Mass Spectrometry Laboratory

41 Noyes Lab | Furong Sun | frs@illinois.edu | 217-333-2545

The Mass Spectrometry Laboratory (MSL) provides a wide variety of mass spectrometry analyses, for example, high resolution/accurate mass (HRAM) and nominal mass determination for small molecules, molecular weight determination for large biomolecules and polymers, and qualification and quantification by GC/MS and LC/MS. Walk up MALDI and ESI instruments are available 24/7 for self-service users.

Microanalysis Laboratory

47 Noyes Lab | Ashley Blystone | blystone@illinois.edu | 217-333-1115

The microanalysis lab provides elemental, thermal, binding, and absorption analysis. Elemental analysis is accomplished via CHN, halide, ICP-OES, and ICP-MS. Thermal techniques include differential scanning calorimetry (DSC) and thermogravimetric analysis (TGA). Molecule binding information is obtained via isothermal titration calorimetry (ITC). Absorption analysis encompasses physisorption, chemisorption, vapor adsorption, or heat absorption for solid samples. Users can be trained on all techniques except for those for elemental analysis which are exclusively staff run.

NMR Laboratory

146 Roger Adams Lab | Dean Olson | dolson@illinois.edu | 217-244-0564

The NMR Lab of the School of Chemical Sciences offers a wide range of spectrometers, probes, and technical capabilities including multi-dimensional, multi-nuclear, and solid-state NMR. Supported by four full-time staff and two student hourlies, ten spectrometers in three locations allow walk-up and long-term NMR experiments 24/7. New users receive about 4 hours of individual basic training with additional instruction available for variable temperature control, multi-dimensional NMR, and specialty spectrometers and experiments.

Storeroom

94 Roger Adams Lab | Karla Southern | ksouther@illinois.edu | 217-244-0985

Stocks supplies of: chemicals, gloves, glassware, dry ice, general laboratory and office supplies. Available for purchase to anyone with a valid University netid and University FOPL account number. Also managing the SCS Chemical Inventory System “Chem-Tracking” database. Users of each research group have access to this database only.

X-Ray Diffraction Laboratory

60 Noyes Lab | Danielle Gray | dgray@illinois.edu | 217-244-1708

Provides complete structural characterization services using X-rays in solutions, colloids, liquid crystals and solids. These services help researchers correlate their X-ray experiment with other characterization methods. The facility has the capability to perform a wide variety of X-ray diffraction experiments and maintains structural database systems providing electronic search, retrieval, analysis and graphics for inorganic, organic and macromolecular structures. The professional staff offers instruction on small molecule crystal growth, design of X-ray experiments and strategies for data collection. Trained users have access to the single crystal diffractometers by appointment and to PXRD via 24/7 scheduled walk-up access. The X-ray lab also houses a Jasco 1500 CD spectrometer that is equipped to analyze solutions and solids, which is available for walkup use to trained users.

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SCHOOL OF CHEMICAL SCIENCES

Best equipment

Professional support staff

Professor-driven and constantly evolving to match frontier research objectives

UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN