UNH Becomes Member of Smart Labs Accelerator Initiative

In January, UNH became the first university in New England to join the Department of Energy’s Smart Labs Accelerator initiative. This initiative invites forward-leaning laboratories to become Smart Labs Accelerator Partners, committing to reducing energy use in labs by at least 20% over the next 10 years and implementing no- or low-cost measures in the shorter term.

UNH’s participation in the initiative is an institutional effort. The Energy Office, Office of Environmental Health and Safety, The Sustainability Institute, and University Instrumentation Center serve as the working group for implementing the initiative. The

In addition to our instrumentation services, the UIC is also available for learning opportunities for various levels of education – from K-12 to college students, and even private citizens. Our staff is regularly involved in performing tours and demonstrations for various groups.

Within the last few months, UIC staff members Nancy Cherim and Mark Townley have hosted a number of groups for demonstrations on our Scanning Electron Microscope (SEM) and Transmission Electron Microscope (TEM). Groups of undergraduate students from UNH mechanical engineering as well as materials science classes have been in to see the capabilities of these instruments. This gives students the chance to see how our scientific instrumentation can be utilized in their own fields.
• Improve the processes for introducing energy reduction activities within laboratory buildings at UNH
• Share best management practices for implementing energy reduction activities
• Develop low to no-cost energy savings projects and practices in support of laboratory personnel
• Identify code-related barriers for energy efficiency and recommend change
• Promote UNH’s commitment and success in energy reduction activities within laboratory buildings
• Educate campus stakeholders on the benefits of implementing energy reduction initiatives in their work areas and buildings

To date, the working group has established a charter for the effort, initiated data collection for the University’s five most lab-intensive buildings, proposed baselines to gauge progress, and started identifying and consolidating a list of projects that will impact this baseline. UNH has been in communication with the Department of Energy and is sharing best practices with other institutions as we all work towards reducing lab energy use. In October, UNH will participate in the International Institute for Sustainable Labs (I2SL) conference.

In order for the Smart Labs Accelerator to succeed, we need labs to participate. For more information, please visit our web page or inquire via email at sustainability.info@unh.edu.

Thomas Aquinas High, and 6th grade girls from the Oyster River Women in Science club. We hope that these experiences will help to spark these student’s interest in the sciences.

In addition to microscopy demonstrations, UIC staff member Rob Cinq-Mars has hosted a pipetting workshop, demonstrating proper usage, care, and maintenance techniques for a group of COLSA students. These workshops give students valuable knowledge to take back into their labs and hopefully help to increase the accuracy of their work.

The learning opportunities aren’t just limited to students. In May, we will be hosting a workshop in collaboration with the NH Science Teachers Association (http://nhsta.net) by providing K-12 science teachers a series of presentations and hands-on demonstrations of various microscopy techniques. The scope will cover Atomic Force Microscopy (AFM), Confocal microscopy, SEM, and TEM. Members of the UIC staff and as well as other UNH faculty will be offering their knowledge and expertise.

If you have a group you think would be interested in learning more about the instrumentation available here, please reach out to us for more information. Whether it’s hands-on training you’re looking for, or just an overview, we’re happy to work with any group to design an event that fits their needs.
New Instrumentation Increases the NH Veterinary Diagnostic Lab's Capabilities

The NH Veterinary Diagnostic Lab (NHVDL) recently acquired a Matrix Assisted Laser Desorption Ionization Time of Flight Mass Spectrometry (MALDI-TOF) Biotyper. This new instrumentation cuts the time for the identification of microbial agents. By breaking molecules into smaller pieces, the MALDI-TOF can produce a "molecular fingerprint" which can then be matched against a database of known infectious agents. Traditional methods can take days, while the new instrumentation can provide accurate information within minutes.

Robert Gibson, the managing director of the NHVDL, is excited for the help this instrument can provide when it comes to the health of animals, people, and agriculture in the area. Increased speed and accuracy for diagnoses can mean faster treatment and help limit the spread of outbreaks. Although the instrument is part of the NHVDL, many infectious diseases can be transferred from animals to humans, so swift action is necessary for multiple reasons.

Meetings Help Guide the UIC's Initiatives

The University of New Hampshire Instrumentation Center Advisory Board's mission is to provide a forum for the Instrumentation Center partners and collaborators to help shape the future of the organization to the benefit of the students, faculty, researchers, and industrial clients.

The nine member group meets twice per year and the agenda typically includes an overview of the performance metrics of the UIC followed by an update on initiatives and a solicitation of new ideas and input from the members. This year, the group met on February 17th.

A short summary of the metrics showed that in general, usage is up but billing is down. This stems from an uptick in UNH student use and a downtick in industrial users for the first two quarters of the fiscal year. As the UIC’s main focus is to support research on campus, this trend reflects this emphasis.

Some of the key take-aways from the meeting included the following recommendations:

- More workshops similar to those done in the past to expose potential users to new methods or instruments
- Focused marketing efforts towards faculty at other universities
- Expansion and upgrading of the UIC
with aid from a generous private donor along with
funding from the NH Agricultural Experiment
Station. For more information on the NH
Agricultural Experiment Station, NHVDL, and how
MALDI-TOF can benefit your own research,
contact the lab or click here.

Shared Light
Microscope Facility

A shared light microscope facility is currently
being set up in room 157 of Rudman Hall. This
facility will be overseen, maintained, and
training provided to users by the UIC. Any
researchers are encouraged to make use of this
new facility which is tentatively slated to include
both upright and inverted fluorescence
microscopes, a stereoscope, and a cryostat. All
microscopes will have digital image collection
capabilities. Renovations to room 157 have been
completed and transfer of instruments into this
room will begin at least by the week of
April 17. Both fluorescence microscopes,
already on campus, will be
receiving camera, software, and
computer upgrades - as early as April
20 for the inverted microscope.

BSL-2 Lab Under
Construction

In the last newsletter, the UIC showcased one of
its newest instruments courtesy of the Dean of
COLSA - the new Sony Cell Sorter. Coupled with
our Becton Dickenson FACSCalibur Flow
Flow Cytometry lab. To use this equipment to its full potential, it was decided that we should segregate it and elevate it to a Bio Safety Level (BSL) 2 to facilitate the analysis of live non-infectious cell work. In order for this to happen, Room W118 in Parsons Hall is being renovated to be two labs. The first lab will continue to house the FT-IR, UV-Vis/NIR, the XPS, and the balance station. The second lab will be designated BSL-2 and will house the Sony Cell Sorter and the BD Flow Cytometer with room to grow.

The funding for this renovation came from the Space Allocation, Repairs, and Renovation Committee (SARRC.) The actual construction started Tuesday March 28th and should be just about finished by the end of April. Watch our website and/or Facebook page for an announcement of the reopening of W118 for use.

Parsons W118 under construction for the new BSL-2 lab.

The view from inside the new BSL-2 lab in Parsons W118.

Newsletter contributions from: Shawn Banker, Jennifer Wolterbeek, Mark Townley, John Wilderman, Rob Gibson, and Colleen Flaherty

Copyright © 2017 University Instrumentation Center, UNH, All rights reserved.

Our mailing address is:
23 Academic Way
Parsons W123
Durham, NH 03824