

Laboratory Science Technology

<https://www.rit.edu/ntid/lst>

Program Overview for Employers

The **Laboratory Science Technology (LST) program** for deaf and hard-of-hearing students at Rochester Institute of Technology (RIT) prepares students for careers in analytical testing laboratories. The program was developed primarily from an *industry perspective* that focuses on testing procedures, scientific theory, laboratory calculations and workplace skills. Flagships of the program are the use of analytical equipment and a state-of-the-art instrumentation laboratory. **Graduates are prepared for work in a broad range of fields, including chemical, biological, biotechnical, pharmaceutical, environmental, forensic industrial and food analysis. They may seek occupations as technicians in laboratories that perform analytical characterizations, research and development, quality control testing and manufacturing support.**

Degrees Awarded

- Associate in Occupational Studies (AOS)
- Associate in Applied Science (AAS)
- Associate+Bachelor's Degree Program options include biology, chemistry, biochemistry, biotechnology and molecular bioscience, and environmental science.

Cooperative Education (Co-op) Component Required

Students are required to complete one 350-hour co-op block.

Equipment and Facilities

Students acquire a foundation in performing laboratory testing procedures in lab settings that develop hands-on skills using a wide variety of instruments and techniques. They receive specific experience using analytical equipment, probes, chromatography instruments, spectrophotometers, microscopes and biotechnology equipment.

Instrumentation Lab: Students learn to use:

- Analyte-specific meters/probes
- Analytical balances
- Atomic spectrophotometer (Atomic Absorption/Emission)
- Automatic titrator
- Capillary electrophoresis system
- Fiber optic-based spectrophotometers
- Fluorimeter

- FTIR spectrophotometer
- Gas chromatography-mass spectrometry (GC-MS)
- Gas chromatographs
- High-performance liquid Chromatography (HPLC)
- Ion-selective electrodes
- Lifetime fluorimeter
- Mass spectrometer
- Mercury analyzer
- Meters/analyzers
- Potentiostat/electrochemical analyzer
- pH meters/electrodes
- Total Organic Carbon Analyzer
- UV/Vis/NIR spectrophotometers

- **Biotechnology/Microbiology Lab:** Students use equipment to perform biotechnology-related and microbiological analyses and techniques that include the use of thermal cyclers, microplate readers, incubators, autoclaves, microscopes, gel electrophoresis apparatus, imaging, colony counting and identification procedures.
- **Chemistry Lab:** Students focus on concentration and dilution techniques, analytical separations, pipetting, preparation of samples and standards, titration and gravimetric analysis with emphasis on quality control, proficiency testing and standard methods.

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Student Skills and Capabilities – Preparation for a Career

LST students are well trained to work in laboratory employment settings. Their program has focused on application and many hands-on experiences. The students practice with instrumental, volumetric, gravimetric and biological techniques, and they demonstrate proficiencies in general “bench skills.” The curriculum emphasizes laboratory organization, storage, record keeping, maintenance, and functioning as a member of a team. LST students are well qualified for various positions in the scientific testing sectors of business, industry, government, education and research. They focus on the proper analysis of environmental, biotechnical, forensic, pharmaceutical, food and industrial samples.

Selected Software Used to Develop Technical Skills

- Chromatography software
- LIMS (Laboratory Information Management Systems)
- Microsoft Word, Excel, PowerPoint
- Spectroscopy software

Selected Technical Courses Leading to an Associate Degree

- Analytical Chemistry
- Biotechnology I, II
- Chemical Separations and Chromatography
- Fundamentals of Biology I, II
- Fundamentals of Chemistry I, II
- Integrated Algebra
- Laboratory Applications
- Laboratory Mathematics
- Laboratory Methods
- Laboratory Tools
- Principles of Biochemistry
- Principles of Organic Chemistry
- Quantitative Instrumental Analysis

The following employers have hired Laboratory Science Technology students and graduates:

- Dow Chemical Company
- Eastman Kodak Company
- James Madison University
- Merck & Co.
- Merieux Nutri Sciences
- National Institutes of Health
- Pacific Northwest National Laboratory
- Paradigm Environmental Services
- Piramal Pharma Solutions
- Roswell Cancer Center
- Tufts University
- University of Georgia
- University of Massachusetts
- University of Rochester
- U. S. Bureau of Reclamation

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RIT/NTID co-op students, graduates and alumni provide employers with highly trained, highly motivated employees with excellent skills. We appreciate your interest in our co-op students and graduates and will work with you through the recruiting process to help you hire the right employee. **For your convenience, access further information and services on our website at www.rit.edu/ntid/nce.** 5/2020