Clinical Lab Technician

Students are trained to apply knowledge from the physical and biological sciences to the detection and management of disease, including the development of laboratory skills and characteristics essential to the health care worker.

Program Description

Rapid advances in research will continue to increase both the number and the complexity of clinical laboratory tests performed. Federal regulations and New York State licensure now require more highly-trained personnel who must meet the minimum educational standard of the associate degree. Consequently, the demand for trained clinical laboratory technicians has been rising and will continue to grow in both the local and national arenas.

The modern clinical laboratory technician applies knowledge from the physical and biological sciences to the detection and management of disease. The program to train clinical laboratory technicians emphasizes development of laboratory skills and characteristics essential to the health care worker. The use of state-of-the-art equipment in the analysis of blood and body fluids, as well as computerized patient data entry systems, allows the students to gain the skills necessary to perform effectively on the Board of Certification Licensure examination.

The Clinical Laboratory Technology (CLT) curriculum encompasses a concentration of medical laboratory courses along with courses in the liberal arts, social science, sciences, and mathematics. Lectures in the clinical laboratory area include studies in hematology, clinical chemistry, coagulation, analysis of urine and other body fluids, immunology, serology, blood banking, and microbiology. Troubleshooting and quality control procedures are integrated into the program. College laboratories provide a simulated medical setting that give students the opportunity to analyze clinical specimens using manual and automated methodologies. In the lab courses, students will use computers for data retrieval, record updating and printing reports.

During their senior year, students complete laboratory rotations at affiliated clinical sites: Kaleida Health: including Buffalo General and Flint Road Laboratories, Sisters of Charity including the St. Joseph Campus, Buffalo Mercy, Kenmore Mercy, Roswell Park Cancer Institute, Erie County Public Health Laboratories,
Eastern Niagara Health Center, Buffalo Medical Group, and Erie County Medical Center. Additional enrichment rotations include the American Red Cross and Upstate New York Transplant Services (UNYTS). The students may perform clinical laboratory procedures at the affiliated hospitals under the direct supervision of laboratory technologists. Students may not perform service work during scheduled clinical sessions. Students must be available for their entire assigned rotation shift; as clinical rotation may be scheduled during evening hours.

Upon successful program completion, graduates are encouraged to take the American Society of Clinical Pathologists (ASCP) Board of Certification (BOC) Licensure examination. Graduates passing the BOC examination will fulfill the requirements for licensure in New York State and will be nationally certified. Graduates of the CLT Program perform consistently at or above the national average on BOC examinations. The granting of the CLT Associate in Applied Science degree is not contingent upon the student passing any type of external certification or licensure examination.

CLT graduates are employed as clinical laboratory technicians in private, clinical, or hospital laboratories and research institutions. Alumni of the program have also found employment as phlebotomists; quality control technicians in the food industry; in biological; pharmaceutical; and chemical laboratories. Other graduates transfer to four-year institutions to pursue a Bachelor of Science degree in Clinical Laboratory Science, as well as other medical fields such as nursing, pre-medicine and physician assistants.

**Admission Requirements**

Admission Criteria includes:
- a high school degree or HSE (High School Equivalency);
- overall high school average of 85% within the last five years;
- an 85% final grade in high school general biology and chemistry;
- a minimum placement test result at the Math 143 and English 110 level;
- a minimum college GPA of 2.7 within the last 5 years;
- completion of all required developmental English courses;
- completion of developmental math courses; and
- completion of high school biology or Biology 107 and high school chemistry or chemistry with a lab (CH 010/011) achieving a minimum grade of "C" in both within the last five (5) years.

**Progression**

The student must maintain a minimum grade of "C" in all clinical lab (ML) courses. The student must receive a minimum grade of "C-" in all other required coursework. All courses may only be repeated once if the minimal grades are not attained or if the student has withdrawn (W) from the course. ML courses are integrated and sequenced in a specific manner to enable students to attain program competencies.

A second failure in a repeated course (a grade below a "C" in ML courses; grade below a "C-" in all other required courses; or a second withdrawal (W) from that course) will result in dismissal from the Clinical Laboratory Technology Program. Because of the critical nature of the profession, deviations from professional conduct may adversely affect the patient's well being. Therefore, the department reserves the right to immediately remove the student from didactic, laboratory and clinical course work and/or dismiss that student from the program if the department determines that the student has acted in an unprofessional manner or if the student is unable to provide safe laboratory practices.

Note: A felony conviction may impede a student from completing degree requirements, such as clinical laboratory rotations required for degree completion, the ability to sit for the BOC/NYS licensure examination and attaining the ASCP credential and NYS CLT license. Failure to meet requirements from the clinical facilities may also preclude completion of the program.

**Graduation Requirements**

- students must complete all ML courses within a four-year limit; and
- students must have achieved an overall QPA of 2.0.

**Essential Functions**

In order for the student to perform the essential functions of the clinical laboratory science profession, the following technical standards are required of students entering the CLT Associate in Applied Science Program.

**Vision:**
The Clinical Laboratory Technician student must be able to read charts and graphs, discriminate colors, read instrument scales, observe microscopic materials and record results.

**Speech and Hearing:**
The Clinical Laboratory Technician student must be able to communicate effectively and sensitively and be able to share information with other members of the health care team.

**Fine Motor Functions:**
The Clinical Laboratory Technician student must manifest all the skills which would enable sample collection, performance of diagnostic procedures on clinical samples and manipulation of instruments and equipment.

**Psychological Stability:**
The Clinical Laboratory Technician student must demonstrate the emotional health required for full utilization of the applicant's intellectual abilities. The student must be able to handle stress and take appropriate actions when emergency situations arise.

**Health Science Report Form**

A Health Science Division Health Report Form is required to be submitted before students complete ML 111 coursework to ensure that matriculated students are in good physical and mental health and capable of completing the program requirements. The health report form includes a physical examination and an immunization report. In addition to the college immunization requirements, the SUNY system highly recommends that students handling fluids that have been recognized by the Centers for Disease Control (CDC) as directly linked to the transmission of HBV/HIV (blood, blood products, body fluids, etc.) be vaccinated against HBV. Additionally, students need to be tested annually for TB (PPD test) and must have a tetanus vaccination within the last 10 years. Students must also have documentation of either history of Varicella (chicken pox); two dates of VZV immunizations; or
VZV titer levels. Furthermore, the NYS Department of Health mandates all students scheduled for clinical rotations must receive the Influenza vaccine and requires that unvaccinated persons wear a surgical mask at all times while in areas where patients may be present. The immunization record is required to be complete and current in order for students to participate in clinical laboratories and clinical rotations. The college reserves the right to deny progression in the CLT Program when students have not updated or submit incomplete health report forms.

Accreditation


NAACLS Accreditation guidelines require that a procedure be established for determining that the applicant’s or student’s health will permit them to meet the technical standards of the program.

Program Competencies

Upon graduation with an Associate in Applied Science degree in Clinical Laboratory Technology, the graduate will be able to:

- Collect and prepare human samples for analysis. Store and transport samples using appropriate preservation methods. Specimens may include blood, urine and other body fluids;
- Prepare reagents and media according to prescribed procedures;
- Perform routine analytical tests in chemistry, hematology/hemostasis, immunohematology/immunology and microbiology in a modern clinical laboratory;
- Perform, record and evaluate routine instrument checks, quality control and maintenance procedures required for tests assayed;
- Recognize abnormal or unusual test results and follow institutional procedures for reporting critical values;
- Identify direct causes of technical or instrumental problems and make appropriate corrections using preset strategies;
- Calculate the results performed if necessary;
- Report results in writing, orally or by computer;
- Observe established safety procedures;
- Demonstrate an understanding of licensure, certification, and continuing education requirements applicable to the clinical laboratory profession; and
- Demonstrate professional behavior consistent with acceptable conduct standards such as appearance, quality of work, quantity of work, maintaining the work area in a clean and orderly fashion, human relation skills, leadership skills, written and verbal communication skills.

Scholarships

- American Society of Clinical Laboratory Science
- American Society of Clinical Pathologists

(Additional scholarship information is on file in the CLT Department Office, room B 613, North Campus)

Program Effectiveness

In addition to the Clinical Laboratory Technician (CLT) Program competencies already listed on this page, the following data is provided to reflect the program’s effectiveness.

CLT (ASCP) Certification/NYS Licensure

An Associate in Applied Science (A.A.S.) degree is granted to each student who successfully completes all coursework and all clinical rotations. Upon graduation from the program, an individual is eligible to apply for the Board of Certification (BOC) examination in order to be credentialed by the ASCP (American Society of Clinical Pathologists).

Additionally, New York State Licensure is now required for clinical laboratory employment in New York State. Many states in the U.S. require state licensure. Separate applications for state licensure must be filed within that state. New York State DOES require passing of the Board of Certification (BOC) Exam for licensure in the State of New York.

The chart below reflects the total number of Clinical Laboratory Technician (CLT) graduates who have passed the ASCP-BOC Examination within the first year of graduation. The National Accrediting Agency for Clinical Laboratory Science (NAACLS) has set a benchmark for CLT programs to achieve a minimum of a 75% certification pass rate average over three consecutive years. The SUNY Eric CLT program has demonstrated yearly certification pass rates well above the NAACLS benchmark. The three year average BOC Rate percentage is 94% (7/1/13 to 6/30/16).

CLT Program Graduation and Attrition Rates

Program graduation rates are defined as the number of students who began the “final half” of the program and have since graduated. Program attrition rates are defined as the number of students who began the “final half” of the program but voluntarily or involuntarily left the program. The National Accrediting Agency for Clinical Laboratory Science (NAACLS) has set a benchmark for CLT programs to achieve a minimum of a 70% average graduation rate percentage over three consecutive years. The SUNY Eric CLT program has demonstrated yearly graduation rates well above the NAACLS benchmark. The three year average graduation rate percentage is 88% (7/1/13 to 6/30/16).

CLT Program Job Placement Rates

Positive job placement rate reflects the number of CLT graduates who obtain employment in the field (or in a closely related field) and/or continued their education within one year after graduation. The National Accrediting Agency for Clinical Laboratory Science (NAACLS) has set a benchmark for CLT programs to achieve a minimum of a 70% positive placement rate average over three consecutive years. The SUNY Eric CLT program has demonstrated yearly positive placement rates well above the NAACLS benchmark. The three year average positive placement rate percentage is 93% (7/1/13 to 6/30/16).

CURRICULUM

Total Degree Credits: 61.0

Students should be advised to successfully complete the following before matriculation into the department: CH 140/141 or HS Chemistry, BI 107 or HS Biology, Liberal Arts elective-CS 101, MT 013.

First Year, Fall Semester

ML 111 CLT Seminar (1 cr)
ML 112 Clinical Analysis I (3 cr)
BI 147 Survey Anatomy and Physiology (3 cr)
BI 148 Laboratory for BI 147 (1 cr)
BT 222 Laboratory Calculations (1 cr)
CH 180 University Chemistry I (3 cr)
CH 181 Lab for CH 180 (1 cr)
EN 110 College Composition (3 cr)
First Year, Spring Semester
ML 122  Clinical Analysis II (3 cr)
ML 123  Lab for ML 122 (1 cr)
ML 124  Serology Lab (1 cr)
ML 126  Bio-Organic Chemistry (3 cr)
MA 112  Medical Law and Ethics (3 cr)
MT 143  Introductory Statistics I (4 cr)

Second Year, Fall Semester
ML 210  Clinical Laboratory Procedures (1 cr)
ML 211  Clinical Rotation I (2 cr) *
ML 212  Clinical Analysis III (3 cr)
ML 213  Lab for ML 212 (1 cr)
ML 214  Hematology I (2 cr)
ML 215  Lab for ML 214 (1 cr)
ML 216  Immunohematology (2 cr)
ML 217  Lab for ML 216 (1 cr)
ML 218  Clinical Microbiology I Lecture (2 cr)
ML 219  Clinical Microbiology I Lab (1 cr)

Second Year, Spring Semester
ML 220  Topics in Clinical Microbiology (1 cr)
ML 221  Clinical Rotation II (2 cr) *
ML 222  Clinical Analysis IV (3 cr)
ML 224  Advanced Hematology (3 cr)
ML 225  Lab for ML 224 (1 cr)
ML 227  Immunohematology II Laboratory (1.5 cr)
ML 228  Clinical Microbiology II Lecture (2 cr)
ML 229  Clinical Microbiology II Lab (1 cr)

Note:
* ML 211/ML 221 students will complete rotations at
designated clinical sites.

NOTE: This is a recommended sequence. Many courses have
prerequisites or co-requisites. Student should consult his/her
academic adviser prior to registering.