

GWYNEDD-MERCY COLLEGE

SCHOOL OF ALLIED HEALTH PROFESSIONS



2009-2010 CLINICAL LABORATORY SCIENCE PROGRAMS

GWYNEDD MERCY COLLEGE
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Medical Technology or Clinical Laboratory Science

A profession in Medical Technology encompasses the performance and evaluation of scientific tests on body fluids. The results of laboratory tests determine the presence of disease, aid in treatment, and monitor therapy. This is a dynamic profession that changes as new medical knowledge is discovered. Medical Technologists, also called Clinical Laboratory Scientists, use the latest biomedical instruments, often interfaced with computers to generate accurate, reliable tests results.

A clinical laboratory is organized into specialized areas where hundreds of different tests are performed on body fluids. Some of the areas of the laboratory with a few examples of their tests are listed below:

CLINICAL CHEMISTRY where medical technologists measure blood levels of various substances, including drugs, proteins, hormones, cholesterol, glucose, and many more.

BLOOD BANK where medical technologists determine blood types, test donor blood for disease, and prepare blood for safe transfusions.

HEMATOLOGY where medical technologists study both red and white blood cells to detect anemia, leukemia, and possible infections.

MICROBIOLOGY where medical technologists grow and identify bacteria, viruses and fungi which cause infection, and determine which antibiotics will be effective.

Medical technologists are clinical laboratory scientists who:

- perform laboratory tests on body fluids
- evaluate test results
- correlate results of many tests done on a patient
- monitor the quality of test results
- troubleshoot problems in tests or instruments
- communicate and interpret results and information
- research and develop new methods
- continue to grow professionally
- with experience, supervise other laboratory personnel

The Role of the Medical Technologist or Clinical Laboratory Scientist

PERFORM LABORATORY TESTS: Medical Technologists have a thorough understanding of modern biomedical instruments and of complex tests used in the laboratory. Computers are used to interface with the instruments, and many hospitals use them to report results. Up-to-date safety practices are followed to prevent injuries and the spread of infection.

EVALUATE TESTS: Medical Technologists evaluate instruments and test methods to provide the most reliable test results. The clinical laboratory scientist examines all results to be certain they are correct before they are reported.

CORRELATE RESULTS: Most laboratory tests are interpreted in conjunction with other patient information. Medical Technologist use their knowledge of how diseases affect test results to be certain the total picture of a patient's results "makes sense."

MONITOR QUALITY: Quality control is central to quality results. Medical Technologists understand the importance of quality control, and they monitor test performance to maintain the highest standards. When a problem occurs, they investigate and correct it.

TROUBLESHOOT PROBLEMS: Medical Technologists recognize errors when they occur in testing and are able to track down the problem in the instrument or test tube.

COMMUNICATE: Medical Technologists report results and explain what they mean to nurses, physicians, and other medical workers.

RESEARCH AND DEVELOP NEW METHODS: In the dynamic world of the clinical laboratory, new tests are constantly being requested as more medical knowledge is discovered. Medical Technologists are on the cutting edge of method research and development.

GROW PROFESSIONALLY: Scientific breakthroughs and advances in technology require Medical Technologists to grow and learn constantly. Reading scientific literature and participating in continuing education programs and professional societies are very important growth activities.

SUPERVISE PERSONNEL: The clinical/medical laboratory is a complex organization. With experience, many clinical laboratory scientists assume leadership positions and have a major responsibility directing the work of others.

Career Opportunities

CLINICAL LABORATORY TESTING: Hospitals and private clinical laboratories are the traditional employers of Medical Technologists. Medical Technologists in these settings perform laboratory tests to find clues left by disease. Their work is essential for diagnosis and treatment.

RESEARCH: University and industrial research laboratories employ Medical Technologists to help find the solutions to many unanswered questions in medicine. Medical Technologists develop and test new methods that ultimately are used in hospital laboratories.

PUBLIC HEALTH: Medical Technologists work in state health laboratories and crime labs. They are involved in community health projects, environmental testing, the Peace Corps and wide variety of laboratories that help keep us all healthy.

SALES AND MARKETING: A Medical Technologist's background is ideal for entry into sales or technical service for biomedical supply firms or pharmaceutical companies. Another career path is consulting with physician office laboratories and manufacturers. Some computer companies who are involved in the installation of laboratory computer systems employ Medical Technologists as technical assistants. These positions often involve extensive travel.

HEALTH ADMINISTRATION: With experience, Medical Technologists grow to become supervisors of clinical laboratory personnel. The Medical Technologists may have the responsibility for the laboratory's quality assurance program or the infection control program of a hospital. They may become experts in the application of computers to the operation of the laboratory or install software and train laboratory employees in its operation. Some Medical Technologists have gone on to obtain an MBA degree or a Law Degree.

GRADUATE STUDIES: Medical Technologists have many options to choose from if they wish to earn a master or doctoral degree. There are programs in Medical Technology, or in each specialty area, such as Microbiology or Clinical Chemistry. Medical Technologists become physicians or veterinarians, others business administrators, computer scientists or cell biologists.

Program of Study

Medical technologists or clinical laboratory scientists attain their professional skills through a baccalaureate education with emphasis on the sciences and a clinical internship. Certification is the pre-requisite for positions in most medical laboratories.

BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

The Three-Plus-One Program

The Medical Technology student studies for three years on the Gwynedd-Mercy College campus. Courses include Anatomy & Physiology, Chemistry, Biochemistry, Statistics, Computer Science, Biology and Microbiology. Students must maintain a 2.5 cumulative average in science to enter the senior year of study. The fourth year of study is completed at a hospital in an approved School of Medical Technology. At the completion of the year (12 months) of study, the student will receive a Bachelor of Science Degree in Medical Technology from Gwynedd-Mercy College, and will be eligible to take a major registry examination.

MEDICAL TECHNOLOGY/BIOLOGY

The Four-Plus-One Program

There are two routes available in the 4 - plus - 1 program. (1) A student may complete a Bachelor of Science Degree in Biology, and then apply, independent of the college, to an approved School of Medical Technology at a hospital. Upon completion of the program, the student is awarded a certificate from the hospital, and is eligible to sit for a major certification examination. A degree **will not be awarded in** Medical Technology from Gwynedd-Mercy College. (2) A student may complete a Bachelor of Science degree in Biology. The student may then re-apply to GMC as a part of the second degree program. The student will apply to the School of Medical Technology at a hospital via the college. The student will be awarded 35 credits for the hospital training and **will** be awarded a Bachelor of Science in Medical Technology.

CERTIFICATION: Upon completion of the baccalaureate degree program, graduates are eligible to sit for a certification examination. In general, certification criteria include graduation from an accredited program in clinical laboratory science or medical technology which culminates in a baccalaureate degree and includes experience in each of the four major disciplines of laboratory practice (clinical chemistry, hematology, microbiology, and blood banking).

Gwynedd-Mercy College students are required to take the examination given by the American Society of Clinical Pathologists*, the MT(ASCP) examination, as a part of the colleges outcomes assessment program.

STATE LICENSURE: In addition to certification, some states have specific requirements for licensure of clinical laboratory personnel. These requirements vary by state, and it is up to each candidate to be aware of individual state statutes.

ADMISSIONS

Before applying to the Medical Technology Program, students are urged to spend a day visiting a hospital laboratory. If you need assistance in setting up a visit, you may call the ADMISSIONS OFFICE of Gwynedd-Mercy College at 1-800-DIAL-GMC and ask about the Shadow Program. Application procedures can be obtained from the Admissions Office at Gwynedd-Mercy College and through the College Catalogue.

Medical Laboratory Technology to Medical Technology Progression

Applicants to the *MLT to MT Progression Program* must have earned an Associate Degree in Medical Laboratory Technology, and become registered as a Medical Laboratory Technician within one year of entering the program.

The program is suited for Medical Laboratory Technicians who wish to obtain a *Bachelor of Science Degree in Medical Technology*. The program requires that a student apply and spend twelve months (12) in an approved School of Medical Technology at a hospital location.

Upon completion of the program, the student will receive a Bachelor of Science Degree in Medical Technology from Gwynedd-Mercy College, and a certificate in Medical Technology from the approved School of Medical Technology. Gwynedd-Mercy College students are required to take the examination offered by the American Society of Clinical Pathologists, the MT(ASCP) examination.*

* There are other agencies that offer examinations to medical technologists. Gwynedd-Mercy College has chosen this agency's examination to be used in the outcomes assessment program.

How to Apply to Gwynedd-Mercy College

1. Complete the application for admission (or reapplication if you are a graduate of Gwynedd-Mercy College).
2. Send the application to the Admissions Office along with the application fee, and a copy of your registry/license/certification, if required.
3. Arrange to have your transcripts sent directly to Gwynedd-Mercy College Admissions Office from your high school, all colleges and technical schools attended.
4. Arrange for letters of recommendations to be sent directly to the Gwynedd-Mercy College Admissions Office.

Additional Information

1. Students must take 45 credits at Gwynedd-Mercy College.
2. Gwynedd-Mercy College maintains a rolling admissions procedure. Applications are reviewed as they are completed, and students are notified of their status on an on-going basis. Credits from previous college work will be evaluated automatically after acceptance. A copy of this evaluation will be sent to you.
3. You are encouraged to visit the campus and talk with an Admissions Counselor. If you would like to arrange a visit, or if you have any questions about the application procedure, please call the Admissions Office at 1-800-DIAL-GMC.
4. If you have specific questions about Clinical Laboratory Science, contact Dr. Linda Reilly, Dean of the School of Allied Health Professions at (215) 641-5543 or www.reilly.l@gmc.edu
5. Visit the website at www.gmc.edu