

CURRICULUM: MEDICAL BIOTECHNOLOGY

First Year (Junior Year)	CREDITS
Fall Semester	16.5
CHEM 355 Biochemistry	4
MATH 301 Laboratory Statistics	1.5
MEDT 350 Human Genetics	3
MEDT 351 Hematology	4
PATH 360 Pathology	3
MEDT 308 Seminar in Biotechnology	1
Spring Semester	16.5
BIOL 379 Cell & Molecular Biology	3
CBHX 315 Health Care Ethics	2
ENGL 325 Professional and Technical Writing	3
MEDT 303 Immunology	3.5
MEDT 360 Chemistry	5
Summer Semester	6
MEDT 422 Medical Microbiology	6
Second Year (Senior Year)	
Fall Semester	16.5
MEDT 439 Applied Techniques in Medical Biotech	2
BIOL 451 Research Methods I	1
MEDT 434 Applied Statistics	1.5
BIOL 414 Intro to Molecular Bioinformatics	2
MEDT 454 Introduction to Molecular Methods	2
MEDT 460 Biotechnology Internship I	8
Spring Semester	17 Credits
MEDT 522 Advanced Microbiology & Immunology	2
MEDT 419 Research Problem	3
MEDT 444 Principles of Molecular Biology	1
MEDT 455 Laboratory Operations	2
MEDT 461 Biotechnology Internship I	9

Bachelor of Science Degrees MEDICAL TECHNOLOGY MEDICAL BIOTECHNOLOGY



CLINICAL LABORATORY SCIENCES

TWO GREAT DEGREE PROGRAMS

WHAT IS MEDICAL TECHNOLOGY?

Medical technology combines the worlds of medicine and science. Medical technologists perform laboratory tests to diagnose and monitor patient's conditions. Tests range from simple blood tests to those that are much more complex.

In their search for information on a patient's condition, medical technologists use microscopes, complex electronic equipment, computers and precision scientific instruments. Medical technologists also develop new tests, confirm the accuracy of test results and report laboratory findings to physicians.

WHAT IS MEDICAL BIOTECHNOLOGY?

Medical Biotechnology also combines the worlds of medicine and science, but the focus of this profession's highly technical laboratory work is that of research, rather than of patient care. The goal of the work is to develop new medical products, such as therapeutic drugs, antibiotics, vaccines, biologic and genetically engineered proteins and genetic tests.

WHERE DO MEDICAL TECHNOLOGISTS WORK?

Most medical technologists first work in hospital or physicians' laboratories either as generalists, conducting a variety of lab tests, or as specialists in one of six major areas: hematology, clinical chemistry, microbiology, blood banking, molecular diagnostics or immunology

Experienced medical technologists have diverse career options, with opportunities in drug testing, therapeutic drug monitoring and forensics to name just a few specialties.

WHERE DO MEDICAL BIOTECHNOLOGISTS WORK?

Most medical biotechnologists work in research labs at universities or in private industry. In university laboratories, they assist scientists by performing experiments that are part of research studies. In industrial laboratories, they help develop and manufacture pharmaceutical drugs or vaccines. Both types of laboratories are involved in research designed to treat or prevent diseases such as heart disease, cancer, AIDS, genetic diseases and many others. In industry, medical biotechnology graduates work in a variety of areas including clinical research, product development, quality control, marketing and sales.

Medical Technology:
www.upstate.edu/chp/programs/mt

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STATE UNIVERSITY OF NEW YORK
UPSTATE
MEDICAL UNIVERSITY
COLLEGE OF HEALTH PROFESSIONS

UPPER-DIVISION TRANSFER
AND GRADUATE COLLEGE

UPSTATE
MEDICAL UNIVERSITY

Student Admissions
1215 Weiskotten Hall | 766 Irving Avenue
Syracuse, NY 13210
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COLLEGE OF HEALTH PROFESSIONS

HOW IS THE JOB MARKET?

There is great demand for graduates of both Medical Technology and Medical Biotechnology degree programs.

In the recent bestseller Jobs Rated Almanac, medical technologists were ranked 16th in a list of the 250 best jobs. In the healthcare/medicine category, they were ranked third. These rankings are based on factors such as salary, stress levels, work environment, outlook, security and physical demands.

According to the New York State Department of Labor, jobs for biological technicians (which includes medical biotechnology) are expected to increase by a faster than average rate. In Central New York, the jobs are expected to increase by 13% through the year 2022. Nationally, the US Department of Labor expects the demand for biological technicians to increase between 10 to 17 percent, due in part to a growing need for innovative and improved drugs brought about by stronger competition among pharmaceutical companies and an aging population.

WHO SUCCEEDS IN MEDICAL TECHNOLOGY?

People who like science, working in a lab, and careful, precise work. Also, people who want to work in health care and help others, but do not want a lot of patient contact.

WHO SUCCEEDS IN MEDICAL BIOTECHNOLOGY?

People who like science, working in a lab, and careful, precise work. Also, people who want to contribute to the health care field in a broader way by working to develop new medical products.

HOW DO I CHOOSE BETWEEN MEDICAL TECHNOLOGY AND MEDICAL BIOTECHNOLOGY?

While there is some overlap between the two fields, Medical Technology is more focused on patient care, while Medical Biotechnology is more focused on research.

HOW DO I FIND OUT IF THIS CAREER IS FOR ME?

Call our office at 315-464-4608 to arrange a tour or inquire about our Open Houses and other special events. A shadow experience can also be arranged in which a prospective student follows medical technology or medical biotechnology professionals in laboratory settings.

HOW LONG ARE THE MEDICAL TECHNOLOGY AND MEDICAL BIOTECHNOLOGY PROGRAMS?

Both of these upper-division bachelor's degree programs take two years (five semesters) and start in the fall.

HOW ARE THE PROGRAMS STRUCTURED?

Both programs combine classroom and practical experience in real laboratories. In the second year, students spend most of their time in professional laboratories, performing real laboratory tests alongside medical technology and medical biotechnology professionals.

Medical Technology students complete their clinicals in hospital and physicians' office laboratories. Medical Biotechnology students complete their internships in research and industrial laboratories.

Graduates of both programs are eligible to take certification exams from the ASCP Board of Certification. Medical Technology graduates also are eligible for individual state licensure. We also offer a master of science program for experienced medical technologists seeking advanced training.

ACCREDITATION

Upstate's programs are accredited by the National Accrediting Agency of Clinical Laboratory Science (NAACLS) 5600 N. River Road, Suite 720, Rosemont, IL, 60018 www.naacls.org



WHO IS ELIGIBLE FOR THE PROGRAMS?

Together, the programs in Medical Technology and Medical Biotechnology admit 20 students each year, ensuring that all students receive close, individual attention from faculty. Anyone who has completed at least two years of college and meets the admissions requirements (at right) is welcome to apply. Certified Medical Lab Technicians (MLTs) are encouraged to apply.

ABOUT OUR PROGRAMS

- 99% of our students successfully complete the program
- Our graduates have an average pass rate of 95% on national certification exams. (The national pass rate is 72% for medical biotech and 73% for medical technology.)
- Virtually 100% of our graduates find employment or enroll in post baccalaureate studies within six months of graduation

WHAT ARE THE ADMISSIONS REQUIREMENTS?

You must have completed at least 60 college credits with grades of C or higher including:

Biology (including General Biology, Microbiology, and Anatomy and Physiology)	16
Chemistry (including General Chemistry and Organic Chemistry)	12
Mathematics (Statistics and College Algebra or Pre-calculus or Calculus)	6
English (including Composition)	6
Social Studies (including Psychology)	6
Liberal Arts/Sciences	14

For both programs, all science requirements must include laboratories and be course for science majors. The exception is Organic Chemistry: the laboratory is recommended but not required for Medical Technology applicants; however the lab is required for Medical Biotechnology applicants. Applicants who plan to apply medical school in the future should complete one year of organic chemistry and one year of physics.

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MEDT 350 Human Genetics	3
MEDT 351 Hematology	4
PATH 360 Pathology	3
Spring Semester	15.5 Credits
CBHX 315 Health Care Ethics	2
ENGL 325 Professional and Technical Writing	3
MEDT 303 Immunology	3.5
MEDT 360 Chemistry	5
MEDT 424 Medical Mycology/Parasitology	2
Summer Semester	9.5 Credits
MEDT 443 Immunohematology	3.5
MEDT 422 Medical Microbiology	6
Second Year (Senior Year)	
Fall and Spring Semesters	29.5 Credits
BIOL 451 Research Methods I (F)	1
MEDT 401 Clinical Practice Preparation (F)	1.5
MEDT 425 Clinical Hematology (F/S)	5
MEDT 427 Clinical Chemistry (F/S)	4
MEDT 429 Clinical Microbiology (F/S)	2
MEDT 433 Clinical Immunology (F/S)	2
MEDT 346 Clinical Blood Banking (F/S)	3.5
MEDT 441 Clinical Correlations I (F)	1
MEDT 442 Clinical Correlations II (S)	1
MEDT 454 Intro to Molecular Methods (F)	2
MEDT 455 Laboratory Operations (S)	2
MEDT 453 Capstone Project (S)	1.5

The program in Medical Technology is registered by the New York State Department of Education as a licensure-qualifying, making all graduates eligible for NYS licensure.

UPSTATE
MEDICAL UNIVERSITY