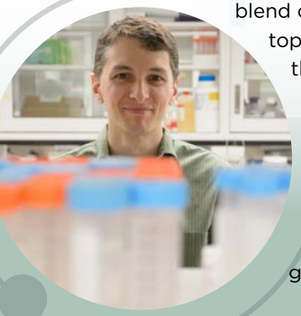
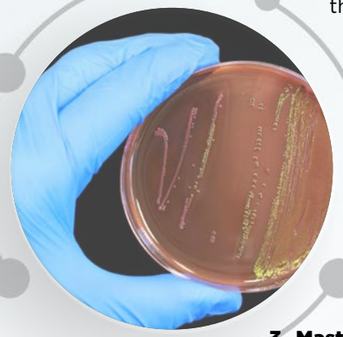
EARN YOUR MASTER'S DEGREE . . . While you Work!

Michigan State University has had a successful program in medical laboratory education since 1926. Through the years our goal has been to provide pertinent knowledge in the latest laboratory techniques to practicing medical laboratory scientists. Through our graduate courses, you can expand your current knowledge, along with your personal credentials. Any of our Master's Degrees can be completed online or in person. Our graduate program offers three choices in furthering your education to the next level – (1) Master of Arts in Biomedical Laboratory Science; (2) Master of Science in Clinical Laboratory Science; or (3) Master of Science in Biomedical Laboratory Operations. There is a brief description of each of these options below.

1. **Master of Arts in Biomedical Laboratory Science** is designed for working professionals. This master's degree is completely online and can be completed while working full time. To earn this degree you need to take 30 course credits beyond your bachelor's degree with a blend of science and management topics. There is no research or thesis work involved. For those who have already taken some of our certificate courses online, this may be the next step in your education. You need to apply and be accepted into the degree-granting program.



2. **Master of Science in Clinical Laboratory Science** emphasizes the multidisciplinary nature of the clinical laboratory and encourages research in the clinical laboratory. The curriculum is customized to your interests and research project. Campus faculty members interact with you online or on-campus, whichever works for you. Many students complete this degree online and continue to work a full time job. Research projects can be completed on the MSU campus or at distant site, with the arrangement of MSU faculty and a local mentor.



3. **Master of Science in Biomedical Laboratory Operations** is designed for individuals with clinical laboratory experience who seek career advancement as managers, administrators, entrepreneurs and policymakers in the field. This program has three major components; science, management, and laboratory operations. This degree will provide a solid foundation in general business including resource management, communication skills, personnel issues, and essential aspects of working in a regulated industry. This degree requires 31 credits, including a management/ science project designed by the student and his/ her faculty committee.

If you are currently taking courses as a lifelong graduate student, you can transfer up to 9 credits towards your Master's Degree. For further information on any of our degree programs, what degree might be right for your life situation, and how to apply, contact our Graduate Education Coordinator and Advisor, Mariane Wolfe at setyabu1@msu.edu **or 517-432-3805.**

MICHIGAN STATE UNIVERSITY

BIOMEDICAL LABORATORY
DIAGNOSTICS PROGRAM
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BIOMEDICAL LABORATORY DIAGNOSTICS PROGRAM

presents

POST BACCALAUREATE EDUCATION OPPORTUNITIES IN BIOMEDICAL LABORATORY DIAGNOSTICS

CERTIFICATE PROGRAMS

RECOGNITION OF COMPLETION

Each certificate program is comprised of a focused set of courses and credits. Upon successful completion of the certificate program courses, you will be awarded a Certificate from the Biomedical Laboratory Diagnostics Program at Michigan State University. Credits earned from these online courses are college/ university semester credits. Official course transcripts may be provided upon request for meeting Certification Maintenance Program (CMP) requirements through ASCP BOC.

IMMUNODIAGNOSTICS AND CLINICAL FLOW CYTOMETRY

Laboratory scientists from all over the world have taken interest in this topic. This program will train laboratory scientists to use the techniques and flow cytometry equipment to diagnose various medical conditions and learn the techniques to arrive at a diagnosis quicker and with more accuracy. This certificate program is made up of three, two-credit courses. The first two courses are only available online, and the third is a one-week lab taught on the main campus of Michigan State University. This post-baccalaureate program assumes you have a minimum of a four-year bachelor's degree and have worked in a laboratory. More in-depth information is available online at https://bld.natsci.msu.edu/online-education/immunodiagnostics-and-clinical-flow-cytometry/

There are advanced flow courses available; for more information see Additional Online Course Offerings in this pamphlet.

MOLECULAR LABORATORY DIAGNOSTICS PROGRAM

This program is designed for working medical laboratory professionals in need of updating their skills and knowledge to meet the demands of modern molecular biology applications. Individuals working in veterinary, forensic, industrial, and pharmaceutical laboratories will also find the content pertinent to their career goals. Individuals seeking certification in molecular biology from the ASCP Board of Certification will find these courses provide a solid preparation for national credentialing examinations; however, these courses do not fulfill the requirements for eligibility for certifying exams.

The program consists of three two-credit courses. The topics to be covered include techniques and theories of molecular biology, including: nucleic acid synthesis and isolation, enzymatic digestion and modification, electrophoresis, hybridization and amplification, as well as clinical laboratory practice ethics. The first two courses are completely online; the laboratory course is a hybrid course that combines online learning and the lab portion taught on campus for one week during the summer. For information on completing the lab at a location near you, contact our Curriculum Assistant. More in-depth information is available online at https://bld.natsci.msu.edu/online-education/molecular-laboratory-diagnostics/

MANAGING BIOMEDICAL LABORATORY OPERATIONS

Our online Managing Biomedical Laboratory Operations certificate program may be used to train new managers, as well as refresh current managers on how to make your laboratory function in a highly efficient manner. Those wishing to stay current on critical issues laboratory managers face on a day-to-day basis will find these courses valuable. Rules and regulations are constantly changing and sometimes the "old" way is no longer the "valid" way to manage your lab. Students should be a graduate of a Bachelor's Degree program. This program is taught in three separate courses. For more in-depth information visit our website at https://bld.natsci.msu.edu/online-education/managing-biomedical-laboratory-operations/

TRANSFUSION SERVICE MANAGEMENT

This one of a kind program is available online. You must register either as a Graduate or "Lifelong" student. This program explores the best practices and common work themes in the area of transfusion management. You will achieve a thorough understanding of what is required to manage a transfusion practice. The certificate program is comprised of four courses. Topics include theories of coagulation, thrombosis, and effective blood product management, and how to handle an active bleeding crisis. For more in-depth information visit our website at https://bld.natsci.msu.edu/online-education/transfusion-service-management/

ADDITIONAL ONLINE COURSE OFFERINGS

- **Course Series in Mass Spectrometry – BLD 870 (2 credits) and BLD 871 (2 credits)**
  BLD 870 covers mass spectrometry theory, including principles of instrumentation, liquid and gas chromatography theory and data analysis as it applies to the clinical laboratory. **BLD 871** will apply clinical mass spectrometry principles to sample preparation, platform selection, data analysis, standards, and quality control.

- **BLD 853 Advanced Flow Cytometry (2 Credits)**
  Design techniques for complex testing, including 8-10 color assays and LDT validation. Topics include reagent cocktails, staining techniques, instrument technology, data management and analysis, quality control and management. The prerequisites are BLD 850, BLD 851 and BLD 852 **OR** experience working with a flow cytometer in a laboratory.

- **BLD 861 – Emerging Infections, Emerging Technology (2 credits) –** This course uses recent cases in infectious diseases to investigate the causes for disease emergence and the laboratory technologies used to identify the microbial causes, to describe epidemiology and to develop surveillance systems and prevention.

- **Course Series in Cell Biology in Health and Disease – BLD 815 (2 credits) and BLD 816 (2 credits)** Part I covers principles and theories of cell biology and Biochemistry are presented with a focus on applications to clinical pathology. BLD 816 is a continuation of BLD 815.

For further information on when courses are offered, their cost, and how to enroll, visit our website: bld.natsci.msu/online-education/ or call our Curriculum Assistant at (517) 884-3483. Join our mailing list to stay connected: bld.natsci.msu.edu/about/mailing-list/

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