

BELLARMINE UNIVERSITY
IN VERITATIS AMORE

DONNA AND ALLAN LANSING SCHOOL OF NURSING & HEALTH SCIENCES

Accelerated Second Degree Bachelor of Health Science in Medical Laboratory Science

Medical Laboratory Scientists (formerly Clinical Laboratory Scientists or Medical Technologists) provide the science that supports healthcare. Eighty percent of diagnostic and therapeutic medical decisions are based on laboratory test results generated by a Medical Laboratory Scientist. They apply skill and instrumentation to analyze blood cells and body fluids, to identify disease-causing bacteria and viruses, and to perform testing prior to transfusions and transplantation. MLS graduates are employed primarily in hospital laboratories, but also enjoy career opportunities in biomedical research, forensics, biotechnology, toxicology, health care administration, pharmaceuticals, and other industries. An MLS degree also provides excellent preparation for medical, dental, or graduate school.

The Bachelor of Health Science in Medical Laboratory Science includes coursework and laboratory instruction in clinical chemistry, medical microbiology, hematology, clinical immunology, and immunohematology (blood banking). All MLS students experience a one-semester clinical internship at one or more of our affiliated Louisville-area hospitals.

Essential Functions

Since a degree in Medical Laboratory Science indicates mastery, not only of knowledge, but also of technical skills, and since these skills are to be applied in clinical situations, all MLS students are expected to meet certain criteria for admission to and progress in the professional program. These criteria include minimum standards of observation, motor function, behavioral-social capabilities, and communication. A list of the Essential Functions may be obtained from the MLS Department Office in Pasteur 108, or on the website at www.bellarmino.edu/lansing/MLS.

Learning Outcomes

Bellarmino MLS graduates will:

1. Establish a personal scientific knowledge base that prepares them to read, to interpret, and to utilize scientific knowledge in clinical practice.
2. Perform laboratory tests with accuracy and precision.
3. Understand and apply laboratory safety regulations and compliance measures.
4. Demonstrate appropriate ethical and professional behavior.

PROGRAM ADMISSION REQUIREMENTS

- Complete and sign the application.
- Submit \$25 application fee (unless a Bellarmine alumni/a).
- Candidates must hold a minimum of a Bachelor's degree.
- A minimum cumulative grade point average of 2.5 on a 4.0 scale.
- A minimum science-math grade point average of 2.5 on a 4.0 scale.
- Two letters of recommendation (included in packet). In general, recommendations from persons who are able to evaluate either academic or professional potential are the most valuable.
- Personal statement explaining why you would like to be a Medical Laboratory Scientist.
- Successful completion of required prerequisite courses for the Medical Laboratory Science program. Prerequisite course(s) may be taken at Bellarmine University.
- If your undergraduate degree is from an international institution, you were born outside the United States, or English is your second language, you will be required to submit an official TOEFLiBT (internet-based test) score and receive a total score of 83 or higher and a 26 or higher on the speaking test. We will also consider an equivalent score on the IELTS or MELAB tests. The Admission, Progression and Graduation Committee reserves the right to require a TOEFL score from any applicant.
- A personal interview, if requested by the MLS Admission, Progression and Graduation Committee.
- Final official transcript(s) from each college or university attended should be mailed to the Office of Graduate Admission and not be marked "Issued to Student".
- If any transcripts or undergraduate degree(s) are from an international institution you must provide an official copy of a third party course by course credential evaluation. The following organizations offer this service and information regarding processes and fees available at: www.aacrao.org, www.wes.org and www.ece.org. The Office of Graduate Admission reserves the right to request a certified copy of the original transcript(s).

Admission Policy: Applicants are considered on their own merits without bias concerning sex, color or creed. Acceptance is based on the undergraduate record, letters of recommendation, community and extracurricular activities, personality and motivation, realistic perception of Medical Laboratory Science as a profession, manual dexterity, ability to interact with other people satisfactorily, emotional maturity, and aptitude for transfer of knowledge to practical performance.

All applicants must possess the physical abilities to perform the tasks required of a medical laboratory scientist and outlined in the technical standards for the program.

INTERNATIONAL APPLICANTS

Please complete the items above under Procedure for Admission and submit the following:

U.S. law requires financial statements from a bank or other financial institution certifying the student's ability to fund the cost of attendance for one academic year minus the amount of any scholarship dollars received. Figures should be in U.S. dollars and must be certified as an official document by the bank or financial institution. A sponsor may be used if the sponsor attaches a signed affidavit stating that he/she will financially support the student until completion of a degree at Bellarmine University. If a sponsor is used, the sponsor's bank statement should accompany the letter. The amount that would need to be shown is \$52,742. These amounts include tuition and fees associated with the program and an average cost for living expenses, books, supplies, health insurance, transportation and personal expenses.

2011-2012 TUITION AND FEES

Tuition: \$35,000 for 4 semester cohort program (full-time)

Fees: \$45 per course comprehensive fee and approximately \$3,000 in lab fees

The four semester professional program approximate cost for tuition and fees is \$39,080.

Funding Assistance

At Bellarmine, we recognize that the cost of private higher education is a major consideration for you and we are committed to providing you with a high quality education at a reasonable cost. Our staff will work closely with you to explore all of the resources and funding options available. Qualified Accelerated Medical Laboratory Science students are eligible for federal student loans and may also choose to apply to local hospital scholarship-to-work programs. For more information on how to fund your Bellarmine education, please visit www.bellarmino.edu/financialaid and www.fafsa.gov. The Bellarmine school code is 001954.

PROGRAM FOR MLS ACCELERATED SECOND DEGREE

An accelerated second-degree program is available to students who already have a degree and have completed program prerequisites. August and January start dates are available. If beginning spring semester, the sequence is spring-summer-fall-spring.

Prerequisites

- Biology, including at least 4 credit hours at 200-level or higher (12)
Immunology is strongly recommended. Additional coursework may be suggested if science courses were completed more than 5 years ago.
- Chemistry, including organic or biochemistry (12)
- Mathematics, precalculus (3)

THE CURRICULUM

Year 1 Fall

- MDLS 301** Orientation to MLS (1)
- MDLS 315** Hematology (3)
- MDLS 316** Hematology Laboratory (2)
- MDLS 317** Hematopathology (3)
- MDLS 445** Clinical Chemistry I (3)
- MDLS 446** Clinical Chemistry Laboratory (1)
- MDLS 447** Clinical Chemistry II (3)
- MDLS 423** Molecular Techniques (3)

Year 1 Spring

- MDLS 430** Seminar II (1)
- MDLS 325** Medical Microbiology (3)
- MDLS 326** Medical Microbiology Laboratory (3)
- MDLS 327** Mycology, Virology, Parasitology (4)
- MDLS 328** Immunohematology (3)
- MDLS 329** Immunohematology Lab (3)

Year 1 Summer

- MDLS 440** Seminar III (1)
- MDLS 435** Leadership and Management (3)
- MDLS 336** Body Fluids (3)
- MDLS 437** Clinical/Molecular Immunology (3)
- MDLS 438** Clinical/Molecular Immunology Lab (1)
- THEO 200** Ultimate Questions (3)

Year 2 Fall

- MDLS 480** Capstone Project (2)
- MDLS 485** Internship (14)
- MDLS 486** Comprehensive Exam (1)
- MDLS 424** Molecular Diagnostics (3)

MDLS 110 Pre-MLS Seminar (1)

A seminar course designed to provide information about the Clinical Laboratory Science profession, career options, current events, and strategies for success in the professional program. May include shadowing of laboratory professionals, field trips to clinical locations, and panel discussions.

MDLS 200 Infection, Immunity, and Genomics (4)

This course is designed to provide clinically-applicable information regarding diagnosis and control of infectious diseases, disease resistance, immunopathological mechanisms in inflammation and sepsis, and the role of genetics/genomics in disease, diagnosis, and treatment. The laboratory portion of the course will demonstrate procedures in clinical diagnosis and management of infectious diseases.

MDLS 250/250L Cellular and Molecular Basis of Disease and Laboratory (4)

This course is designed to investigate the biological processes involved in pathology at the cell and molecular levels. Topics to be covered include abnormalities in biological molecules, metabolism, regulation of gene expression, cell communication, and cell cycle regulation. The laboratory will focus on transferable skills and current molecular/genomic methods utilized in diagnosis and therapy.

MDLS 300 Immunology (3)

A study of basic immunology, including history, immunoglobulin structure, function and synthesis, cellular interactions and cytokines, antigen-antibody interaction, complement, inflammation, hypersensitivity, autoimmunity and immunity to infection. (Prerequisite: BIOL 109 or 130, or equivalent.)

ACCREDITATION

National Accrediting Agency
for Clinical Laboratory Sciences
5600 N. River Road Suite 720
Rosemont, IL 60018-5119
847.939.3597, 773.714.8880 or info@naaccls.org
F: 773.714.8886

CONTACT INFORMATION

Karen Golemboski, Ph.D, MT (ASCP), Dept. Chair
502.272.8387 or kgolemboski@bellarmine.edu

Office of Graduate Admission
502.272.7200 or gradadmissions@bellarmine.edu

Julie Armstrong-Binnix, Graduate Admission Officer
502.272.8364, 800.274.4723 x.8364,
or julieab@bellarmine.edu

These courses are available to students admitted to the MLS professional programs:

MDLS 310 Orientation to Medical Laboratory Science (1)

An orientation to clinical laboratory science including professional responsibilities, basic clinical laboratory techniques, safety, general principles of quality assurance, medical terminology and phlebotomy.

MDLS 315 Hematology (3)

Basic hematology and hemostasis theory with emphasis on blood cell morphology and function, hematopoiesis, laboratory evaluation of hematologic cell production and function, and assessment of hemostatic function.

MDLS 316 Hematology Laboratory (2)

An introduction to hematology and hemostasis procedures, including blood cell morphology, evaluation of cellular parameters, hemostasis procedures, and principles of clinical instrumentation.

MDLS 317 Hematopathology (3)

Advanced study in hematology and hemostasis focusing on correlation of clinical laboratory data and pathophysiology of hematological and hemostatic disorders.

MDLS 320 Medical Laboratory Science Seminar I (1)

Integration of Medical Laboratory Science theory, practice, pathology, and professional issues. May include guest speakers, critical reading and discussion of current scientific literature, and attendance at professional meetings when appropriate. Students will participate in discussions and evaluate presentations.

MDLS 325 Medical Microbiology (3)

A study of medically important bacteria, mycobacteria, and obligate intracellular organisms. Microbial physiology, genetics, metabolism, and principles of host-parasite relationships are discussed. Media selection and cultivation, sterilization, disinfection, staining, microscopy, and safety are included. Methods of microbial disease detection, biochemical and molecular identification, and methods of antibiotic sensitivity testing are evaluated and compared.

MDLS 326 Medical Microbiology Laboratory (3)

Laboratory instruction in the collection of specimens, microscopic preparation and examination, cultivation of bacteria, identification techniques, antimicrobial safety measures, and quality control procedures.

MDLS 327 Mycology, Virology & Parasitology (4)

A study of classification, identification, and pathophysiology of diseases caused by medically important non-bacterial microorganisms, including fungi, parasites (protozoa, filaria, helminths, and arthropods), and viruses. The laboratory portion of the course will cover specimen collection and processing, culture (where appropriate), and identification of organisms.

MDLS 328 Immunohematology (3)

An intensive study of immunohematology concepts. Fundamental hemotherapy, antigen-antibody systems, blood group serology, blood donation, component therapy, adverse effects of transfusion and essential hemotherapy will be discussed.

MDLS 329 Immunohematology Laboratory (3)

An introduction to immunohematology and hemotherapy procedures. ABO blood grouping, Rh typing, rare antigen typing, irregular antibody detection and identification, compatibility testing and quality assurance procedures will be stressed.

MDLS 402 Internship (1-3)

Optional internship experience in applications of Medical Laboratory Science (separate from the clinical internship which is required for professional certification).

MDLS 403 Selected Topics in Medical Laboratory Science (1-3)

Selected topics of current or special interest, not typically covered in an undergraduate Medical Laboratory Science curriculum.

MDLS 404 MLS Independent Study (1-3)

Guided reading or research in an area of special interest under the direction of a faculty member.

MDLS 423 Molecular Techniques (1)

This class is designed to give MLS students working knowledge and transferable skills in techniques used in molecular diagnostics, including specimen collection and preparation, nucleic acid purification, various electrophoresis formats, nucleic acid amplification techniques, hybridizations, and quality assurance.

MDLS 424 Molecular Diagnostics (3)

Essential concepts and techniques in molecular biology, as employed to identify individuals at risk for acquiring specific diseases, to identify novel markers of human disease, and to diagnose infectious and other human diseases at the nucleic acid level. (Pre-requisite: MDLS 250 or equivalent).

MDLS 430 Medical Laboratory Science Seminar II (1)

Integration of Medical Laboratory Science theory, practice, pathology, and professional issues. May include guest speakers, critical reading and discussion of current scientific literature, and attendance at professional meetings in when appropriate. Students will participate in discussion, evaluate presentations, and present a current article or review topic for discussion.

MDLS 435 Leadership and Management (3)

This course focuses on the MLS professional's leadership roles in practice. Leadership theories and models of planned change and decision making are used to develop plans for solving problems in the healthcare setting. Healthcare delivery, health policy, and management roles and functions are addressed.

MDLS 436 Body Fluids (3)

An introduction to the analysis of urine; cerebrospinal, serous, synovial, seminal and amniotic fluids; sweat; gastric and fecal specimens. Renal function, normal and abnormal urine constituents, fluid cell counts, specimen collection and preservation will be stressed.

MDLS 437 Clinical & Molecular Immunology (3)

A study of the diagnostic applications of immunological, molecular and serological testing. The immunology and diagnosis of infectious disease, autoimmunity, immunodeficiency, and immunoproliferative disease will be discussed.

MDLS 438 Clinical and Molecular Immunology Laboratory (1)

An introduction to serologic and molecular procedures used in the diagnosis of infection and autoimmunity.

MDLS 440 Medical Laboratory Science Seminar III (1)

Integration of Medical Laboratory Science theory, practice, pathology, and professional issues. May include guest speakers, critical reading and discussion of current scientific literature, and attendance at professional meetings when appropriate. Students will participate in discussion, evaluate presentations, and present a previously-published case study for discussion.

MDLS 445 Clinical Chemistry I (3)

This course provides a basic understanding of physiological chemistry. Topics covered include instrumentation, proteins, carbohydrates, lipids, enzymes, metabolites, electrolytes, acid-base balance, endocrine function, and toxicology. Principles and procedures of clinical laboratory testing will be introduced.

MDLS 446 Clinical Chemistry Lab (1)

Clinical chemistry procedures will be performed. Quality assurance, normal values, laboratory mathematics, instrumentation, and clinical significance of results will be studied. Correlation of metabolism with laboratory results will be stressed.

MDLS 447 Clinical Chemistry II (3)

Continued study in physiological chemistry, with an emphasis on understanding the physiological basis for tests performed in a clinical chemistry lab; includes testing principles and procedures, clinical significance of test results, case studies, and quality assurance.

MDLS 450 Medical Laboratory Science Seminar IV (1)

Integration of Clinical Laboratory Science theory, practice, pathology, and professional issues. May include guest speakers, critical reading and discussion of current scientific literature, and attendance at professional meetings when appropriate. Students will participate in discussion, evaluate presentations, and present topics for class discussion.

MDLS 480 Senior Capstone Project (2)

Student-developed case study or research project representative of current practice standards. Also requires attendance at MLS Seminar. Project will include a paper and poster, and will be presented at both MLS Seminar and Undergraduate Research Week.

MDLS 485 Medical Laboratory Science Clinical Internship (1-14)

Clinical experience in chemistry, hematology, microbiology, immunology, immunoematology, coagulation, and urinalysis. Students will perform clinical laboratory procedures, applying analytical principles and technical skills. Under supervision, students will work independently, demonstrating initiative and problem solving skills while performing clinical laboratory testing of patient specimens.

MDLS 486 Comprehensive Medical Laboratory Science Examination (1)

Study sessions and comprehensive examinations covering hematology, immunology, clinical immunology, clinical chemistry, medical microbiology, immunoematology, laboratory operations, and body fluid analysis. The course is intended to build upon the foundation of prerequisite courses and prepare students for national board examinations.

Accelerated Bachelor of Health Science in Medical Laboratory Science

PERSONAL DATA

Name _____
LAST FIRST MIDDLE MAIDEN

Preferred Name _____ Social Security Number _____ Gender _____

Place of Birth _____ Date of Birth _____
CITY STATE/PROVINCE COUNTRY

Permanent Address _____
STREET ADDRESS

CITY COUNTY STATE/PROVINCE ZIP CODE COUNTRY

Home Phone (____) _____ Work Number (____) _____ Extension _____

Cell Phone (____) _____ Email Address _____

Citizenship U.S. Permanent U.S. Resident Non U.S. Citizen

If you are not a U.S. citizen, what is your country of citizenship? _____

What is your current country of residence? _____

Is English your first language? Yes No

If no, what is your first language? _____

Are you Hispanic or Latino? Yes No

In addition, select one or more of the following racial categories to describe yourself:

- American Indian or Alaskan Native Asian Black or African American
 Native Hawaiian or Other Pacific Islander White

Will you be applying for aid with the Veterans Administration? Yes No

Where did you hear about Bellarmine's Medical Laboratory Science program? _____

If you are accepted into the Medical Laboratory Science Program, will you be willing to be assigned for clinical instruction to any of the affiliated hospital laboratories? Yes No

If no, please explain why. _____

EDUCATIONAL DATA

Please list all colleges and/or universities you have attended.

INSTITUTION	LOCATION	DATES ATTENDED	DEGREE RECEIVED	GPA

Do you plan on taking prerequisite courses at Bellarmine before your program starts? Yes No

If so, which semester do you plan to enroll in prerequisites? Fall of _____ Spring of _____ Summer of _____

List all courses you plan to complete before entering the MLS program.

DEPARTMENT	COURSE NUMBER AND NAME	CREDIT HOURS

PROFESSIONAL INFORMATION

List jobs (part time or full time) which you have held.

EMPLOYER	DUTIES	DATES

If you have been employed, list two supervisors who may be contacted for recommendations.

NAME	ADDRESS	PHONE

COMMUNITY ACTIVITIES

List extracurricular or community activities in which you are involved.

ORGANIZATION / GROUP

OFFICE / LEADERSHIP POSITION HELD

DATES INVOLVED

HONORS AND AWARDS

List honors and/ or awards you have received.

BACKGROUND DATA

Have you ever been dismissed from a college or university for disciplinary reasons, or been sanctioned by a disciplinary board? Yes No

If yes, from where? _____

A release will be mailed to you. You must sign and complete the form and mail it back to the Office of Admission at Bellarmine University one month prior to the first week of classes. This form will be mailed to the Dean of Students asking for an explanation of the sanction and circumstances.

Have you ever been convicted of a felony? Yes No

If you answered yes to either of the last two questions, please explain on a separate sheet of paper how you were held accountable (i.e., outcomes, sanctions), when the incident occurred and any additional information you wish to provide. Please note that we may need to request additional information.

SIGNATURE OF APPLICANT

I declare that the information provided on this form is true, correct and complete. Bellarmine University has my permission to verify information by obtaining documents as needed. I understand that providing false information may result in Bellarmine University revoking my status as an accepted or enrolled student. Also, I grant Bellarmine University or its appointee(s) permission to post my personal and academic information on Bellarmine's secured, password protected intranet and student portal.

Signature _____ Date _____

Bellarmino University admits qualified students of any age, sex, sexual orientation, race, color, religion, or national and ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the school. It does not discriminate on the basis of age, sex, sexual orientation, race, disability, color, religion, or national and ethnic origin in administration of its educational policies, admissions policies, scholarship and loan programs, and athletic and other school administered programs. Bellarmine University is an Affirmative Action-Equal Opportunity employer.

RECOMMENDATION FORM: Medical Laboratory Science

APPLICANT: Fill in your name and forward one copy to each respondent. Please provide a stamped, addressed envelope along with each form. **Two recommendations are required with your application.**

I, undersigned, hereby waive all rights or privileges to inspect or challenge the content and comments appearing in this letter of evaluation.

Name of Applicant _____

Signature _____ **Date** _____

RESPONDENT: The individual whose name appears above is applying for admission to the Bellarmine University Medical Laboratory Science Program. Evaluations of the applicant’s potential are required as part of the application procedure and this individual requests that you write on his/her behalf. A standard format is provided for your use, but you may choose to write a letter instead of using the form. It would be appreciated if you would respond as early as possible so that consideration of the application will not be delayed.

Name of Respondent _____ **Title** _____

Signature _____ **Date** _____

Basis of Evaluation: (Check all that apply).

- Student in class
- As a co-worker
- Through discussions with the student
- As an employee
- Assistant to me in teaching or research
- Through discussions with other faculty
- Personal friend
- Through examination of the student’s record

Rate the student on the following in terms of his/her potential for further training and professional practice. Keep in mind that this rating should be relative to students you may have known who have aspired to a career in Medical Laboratory Sciences and not necessarily relative to all students you have known. Use the following scale: 4-Outstanding, 3- Good, 2-Satisfactory, and 1-Unsatisfactory.

	4	3	2	1	DESCRIPTIVE COMMENTS
Intelligence					
Oral and Written Expression					
Character and Personality					
Personal and Social Maturity					
Interpersonal Relationships					
Motivation					
Initiative					
Work Habits					
Overall Rating					



Is there any reason to question the applicant's integrity?

Is there any reason to question the applicant's emotional stability?

How long and under what circumstances have you known the applicant?

What are the outstanding characteristics (positive and negative) of the candidate?

How well does the candidate get along with fellow students and the faculty?

How does the applicant compare with other pre-professional students with similar career aspirations?

What is your overall evaluation of the applicant?

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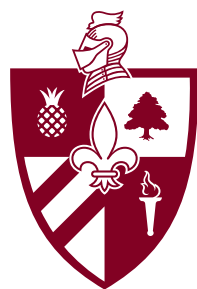
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What is your overall evaluation of the applicant?



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