IVY TECH COMMUNITY COLLEGE SOUTHERN INDIANA

MEDICAL LABORATORY TECHNOLOGY ASSOCIATE DEGREE PROGRAM

OVERVIEW AND APPLICATION PROCESS BOOKLET

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OVERVIEW AND APPLICATION PROCESS

NON-DISCRIMINATION AND EQUAL OPPORTUNITY POLICY

Ivy Tech Community College provides open admission, degree credit programs, courses and community service offerings, and student support services for all persons regardless of race, color, creed, national origin, religion, sex, physical or mental disability, age or veteran status. The College also provides opportunities to students on the same non-discriminatory opportunity basis. Persons who believe they may have been discriminated against should contact the campus affirmative action officer, Director of Human Resources, or Dean of Student Affairs.

BOOKLET DISCLAIMER

This booklet is intended to supply accurate information to the reader. The College reserves the right to change the Program and course requirements; however, every effort will be made to inform students of any program changes. This handout and its provisions are not in any way a contract between an applicant and the College.

ACCREDITING ORGANIZATIONS

The College is accredited by the North Central Association of Colleges and Schools.

North Central Association of Colleges and Schools
30 North LaSalle Street, Suite 2400
Chicago, IL 60602-2504
Phone: 312-263-0456

The Medical Laboratory Technology Program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Graduates of the program are eligible to sit for the national ASCP certification exam. Information regarding accreditation of medical lab tech programs is available at www.naacls.org and information regarding eligibility for national certification is available at www.ascp.org.

National Accrediting Agency for Clinical Laboratory Sciences
5600 N. River Rd. Suite 720
Rosemont, IL 60018-5119
Phone: 847-939-3597

PURPOSE

The Medical Laboratory Technology Program at Ivy Tech Community College of Indiana is designed to prepare graduates to work in clinical laboratories in hospitals, clinics, physicians' offices, reference labs as well as in industry or research laboratories as Medical Laboratory Technicians. Medical Laboratory Technicians perform laboratory procedures, define and solve associated problems and use quality control techniques to aid in the diagnosis, treatment and monitoring of patients.

This two year Associate of Applied Science program requires completion of a minimum of 69 credit hours. The conferring of the AAS Degree is **NOT** contingent upon passing any type of external certification or licensure examination.

PROGRAM MISSION AND PHILOSOPHY

The purpose of the Medical Laboratory Technology Program is to provide post-secondary education to serve the needs of the individual, the community, the state, and the nation. The program provides didactic and clinical experience that enables the student to develop definable job skills required to secure employment in the medical laboratory.

Learning occurs when it is relevant to student needs and goals; when there is a close correlation between theory and practice; when there is teacher-student interaction; and when learning is the active responsibility of the student.

The education of the student is the responsibility of the College where education is the primary function. College auxiliary services are available to the student during the program. The practical laboratory experience, an essential part of this education, is conducted within clinical laboratories.

College faculty plan, implement, and evaluate curriculum; clinical instructors guide and evaluate the clinical experience. The faculty and instructors teach through realistic correlation of principles and clinical experience.

The program strives to develop an individual who is competent in the present-day clinical laboratory environment, and who is adaptable to the changing technology in this occupational area.

PROGRAM GOALS

From this philosophical base, the following goals are established for the Medical Laboratory Technician Associate Degree Program:

1. The program will provide relevant didactic and clinical experience for the graduate to achieve entry level job competencies:
    a. Perform and understand the principles of the most frequently requested laboratory procedures.
    b. Maintain appropriate quality control.
    c. Recognize any routine problem or deviation that may arise.
2. The College will complete all steps necessary to achieve initial accreditation in order to provide the opportunity for certification of competency in the medical laboratory.
3. The Program will be consistent with the current technology of medical laboratories in the community:
    a. Identify current laboratory procedures used in the community.
    b. Incorporate appropriate principles, procedures, and skills within the program.
4. The Program will promote personal, social, professional responsibility:
    a. Identify professional attitudes and conduct.
    b. Encourage participation in professional organizations.
    c. Identify continuing education opportunities.
    d. Develop effective communication skills.

CAREER ENTRY COMPETENCIES

Graduates of the Medical Laboratory Technology Program are expected to demonstrate the following career-entry competencies as recommended by the National Accrediting Agency for Clinical Laboratory Science:

1. Collect, process, and analyze biological specimens and other substances.
2. Perform all analytical tests of body fluids, cells, and other substances.
3. Recognize factors that directly or indirectly affect procedures and results, and take appropriate action within predetermined limits when corrections are indicated.
4. Apply basic scientific principles in learning new techniques or procedures.
5. Perform and monitor quality control/quality assurance within predetermined limits.
6. Perform corrective and preventive maintenance of equipment and instruments or refer to appropriate sources for repair.
7. Apply principles of safety.
8. Demonstrate professional conduct and interpersonal communication skills with patients, laboratory personnel, other health care professionals, and with the public.
9. Recognize the responsibilities of other laboratory and health care personnel, and interact with them with respect for their jobs and patient care.
10. Relate laboratory findings to common disease processes.
11. Establish and maintain continuing education as a function of growth and maintenance of professional competence.

SCOPE OF PRACTICE

Specific responsibilities of the six general Professional Levels competencies as described in the "Scope of Practice" (Harmening, Castleberry, & Lutz, 1995) are as follows:

1. TECHNICAL SKILLS
    a. performs standard laboratory techniques under supervision
    b. ensures proper function of laboratory equipment
    c. operates and calibrates all laboratory instruments to ensure accuracy
    d. maintains records/documentation
    e. performs quality control procedures
    f. processes data, enters data into the computer
    g. collects specimens
    h. prepares specimens for analysis
    i. determines acceptability of sample within guidelines
    j. performs preventive and corrective maintenance and repairs on basic laboratory equipment
    k. operates laboratory equipment
    l. troubleshoots basic instrument malfunction

m. troubleshoots instrument problems within established parameters
n. performs new procedures as directed
o. performs some non-automated and specialized lab procedures

2. JUDMENT/ANALYTICAL DECISION MAKING
    a. performs quality assurance
    b. performs quality control procedures within established parameters
    c. performs analytical and decision making functions with direct supervision
    d. prioritizes assignment of test requests (stats)
    e. recognizes and refers implausible results
    f. refers requests for special and unusual tests
    g. recognizes and refers questions and/or problems to appropriate personnel
    h. coordinates general workflow
3. KNOWLEDGE BASE
    a. complies with safety guidelines
    b. recognizes abnormal results
    c. reports abnormal results
    d. understands the basic physiology of laboratory results
    e. recognizes appropriate and inappropriate selection of basic laboratory testing
    f. observes principles of data security and patient confidentiality
    g. maintains ethical standards
    h. recognizes unexpected results, errors, and problems with patient tests
4. COMMUNICATION
    a. reports test results
    b. communicates with personnel in work group
    c. acts as advocate to effect legislation and influence outside agencies
    d. provides education for public as needed
5. TEACHING/TRAINING
    a. enforces safety regulations
    b. responds to technical questions consistent with level of training
    c. participates in personal continuing education
    d. responsible for own professional development
6. SUPERVISION/MANAGEMENT ADMINISTRATION
    a. maintains inventory and supplies
    b. suggests cost effective laboratory procedures or protocol

ESSENTIAL FUNCTIONS OF MEDICAL LABORATORY TECHNOLOGY

Qualified applicants are expected to meet all admission criteria as well as essential functions with or without reasonable accommodations. Students requesting accommodations to meet these criteria must inform the Program Chair in writing of the need for accommodations at the time of admission to the program. The student is expected to contact the ADA counselor in Student Affairs to file the appropriate forms documenting the need for accommodations. The ability to perform the Essential Functions will need to be documented by physician signature.

Function	Program Specific Examples	Frequency
GROSS MOTOR SKILLS	Reach laboratory bench tops, shelving, patients lying in hospital beds or patients seated in out-patient collection chairs Bend, lift, and carry reagent containers Control laboratory equipment and adjust instruments to perform laboratory procedures Use an electronic keyboard to operate equipment and to calculate, record, evaluate, and transmit laboratory information	C
FINE MOTOR SKILLS	Perform testing procedures which require the use of both hands (pipetting, mixing, pouring, wiping tip, etc.) Possess manual dexterity to safely handle and/or transport biologically hazardous specimens Possess manual dexterity to safely perform venipuncture, microcollections, and culture specimens Perform testing procedures which require delicate psychomotor skill control	C

PHYSICAL ENDURANCE	Perform moderately taxing continuous physical work Stand for prolonged time period over several hours Sit for prolonged time period over several hours Travel to clinical laboratory sites for clinical experience – may require 30-60 minute drive	C
PHYSICAL STRENGTH	Lift up to 50 lbs reagent containers, stock	O
MOBILITY	Move freely and safely about the laboratory Refer back to Gross Motor Skills	C
HEARING	Hear and respond to verbal communication from co-workers, other health care staff, and patients Hear and respond to equipment and instrument alarm systems Hear and respond to equipment and instrument timers Utilize the telephone for communication between lab and other health care personnel and the community.	C

VISUAL	Confirm patient identity, specimen, etc.; read lab requisitions, labels, results, etc. Read/comprehend text, numbers, graphs, instrument settings, etc. in print and on computer screen Read laboratory procedures, instrument manuals, manufacturer inserts, chemical names and instructions Follow written instructions to be able to independently perform laboratory test procedures Observe and visually interpret laboratory tests on biological specimens (body fluids, culture material, tissue, blood and serum) Differentiate color, clarity, and viscosity of specimens, reagents, or reaction products Differentiate colors of stained specimens, and color coded evacuation tubes Employ use of clinical grade binocular microscope to discriminate fine structural details, and color (hue, shading,and intensity) of microscopic specimens Possess eye-hand coordination	C
TACTILE	Utilize fingertips for tactile discrimination of vein size, depth,and direction, arterial pulse location, etc.	O, F, C Depending upon employment

SMELL	Discriminate odors specific for certain organisms, metabolic disorders Differentiate odor of specimens Discriminate/Differentiate odors of chemicals/reagent safety issues and reaction products	C

	EMOTIONAL STABILITY: Possess emotional health necessary to effectively employ intellect and exercise appropriate judgment. FLEXIBILITY: FUNCTION UNDER STRESS: Interact with patients and health care workers in a professional manner in all circumstances i.e., stress, crises, etc. without exhibiting anger, rage, or other inappropriate emotional displays Manage time and systemize actions in order to complete professional and technical tasks with realistic constraints Provide professional and technical services while experiencing the stresses of task related problems (i.e., ambiguous test ordering, ambivalent test interpretation), emergency demands, and a distracting environment Flexible, creative, and able to adapt to professional and technical change	C
EMOTIONAL STABILITY AND INTERPERSONAL SKILLS	Adapt to working with unpleasant biological specimens Able to draw blood specimens in ER and other locations on critically ill patients SOFT SKILLS: Interact with trauma, chronically ill, acutely ill, and terminally ill patients of all ages, race, etc. Provide service to all patients, regardless of age, race, gender, sexual orientation, religion, physical, or mental handicap, physical condition or disease process Be honest, compassionate, ethical, and responsible	
Revision 2/2015	Be forthright about errors or uncertainty Able to critically evaluate his/her own performance and accept constructive criticism, and look for ways to improve	

COMMUNICATION SKILLS	<u>VERBAL:</u> Speak clearly, concisely and employ correct vocabulary and grammar for communication with physicians, other health care professionals, students, faculty, patients, family and public in person and via telephone Give clear verbal instructions to patients prior to specimen collection Converse effectively, confidentially, and sensitively with patients in regards to laboratory test <u>NON-VERBAL:</u> Recognize, identify and respond correctly to non-verbal communication <u>WRITING AND RECORDING:</u> Transcribe laboratory results accurately and legibly in print and on computer report screen Transcribe phone messages accurately and legibly Write laboratory procedures using correct grammar, spelling punctuation, sentence structure and appropriate medical terminology <u>READING:</u> Read and correlate laboratory results Read and comprehend technical and professional materials (i.e., procedure manuals, manufacturer inserts, reference materials, textbooks, journals, etc.)	C

INTELLECTUAL/ CONCEPTUAL	Ability to problem solve Critical Thinking: Measuring Calculating Reasoning Analyzing Prioritizing Synthesizing Correlating Interpret normal and abnormal laboratory test results Use Levey-Jennings Charts, graphs and numerical tables Use testing algorithms Calculate laboratory test results when required Recognize when a testing or instrument problem exists and take appropriate action Recognize when problems or complications occur and take appropriate action during patient procedures Prioritize workload Delegate workload	C

PROGRAM ADMISSION

The college is an equal opportunity affirmative action state college and conducts its business in a manner that will not discriminate against individual on the basis of sex, race, color, creed, national origin, physical handicap or age. The College reserves the right to guide the enrollment of students in a particular program or course on the basis of their prior academic records and vocational counseling.

Admission to the MLT Program is a two-step process. The student must first apply to the college. Once those requirements have been fulfilled and the student meets the pre-requisite requirements, the student's file is then reviewed for eligibility for enrollment in the MLT Program.

The application process is as follows:

IVY TECH COMMUNITY COLLEGE
HEALTH SCIENCE PROGRAMS ADMISSION-SELECTION PROCESSES

PROGRAM: Medical Laboratory Technology

STEP ONE: Admission to the College

- Contact the Admissions Department for College admission requirements.

STEP TWO: Admission to the Program

- **Advising:** Attend a required program information session and/or meet with a program advisor; contact your advisor for campus-specific advising requirements.

- **Prerequisites:** Complete pre-requisite requirements
    - Any academic skills advancement courses identified by your ACCUPLACER test.
        - Program course pre-requisites: #IVYT 1XX, #ENGL 111, #MATH 123 or higher, #APHY 101, #CHEM 101 and either #BIOL 201 or 211 or #APHY 102 are the minimum required prerequisite courses.

- **Program Application:**
    - Submit a program application prior to the established deadline date: **May 1, or the next business day if May 1, falls on a week-end or holiday.**
    - Contact your advisor for campus-specific information on how to obtain an application packet.

- **Selection Policy**: When there are more qualified applicants than seats available, a point system will be utilized to determine who is admitted to the program.

    - Applicants having the highest points will be offered admission to the program according to the number of clinical spots available. Courses will be evaluated based on the higher of two (2) attempts for each course.

    - **Course Points**

        A = 8 pts B = 6 pts C = 4 pts D = 0 pt
        #APHY 101
        *#BIOL 201 or 211 or APHY 102
        *#CHEM 101
        #*MATH 123 or higher
        *Points for credit received by CLEP or DANTES test out = 6 points

        A = 4 pts B = 3 pts C = 2 pts D = 1 pt
        #IVYT 1XX
        HLHS 105
        #*ENGL 111
        *PSYC 101 or SOCI 111
        *COMM 101 or COMM 102
        *Points for credit received by CLEP or DANTES test out = 3 points

    - **Tie Breaker – Points for PSYC 101 or SOCI 111 and COMM 101 or COMM 102 and HLHS 105**

The application packet must include the following:

1. Application form with all information filled in completely.
2. A copy of any college transcripts from which transfer credit to Ivy Tech Community College has been requested or issued. An unofficial transcript will serve the purpose for the admission packet for the MLT Program; however, an official transcript must be on file with the Registrar's office for transfer credit to be issued. Grades taken from unofficial transcripts may be verified using the official transcript; any student who alters an unofficial transcript for the purpose of gaining additional admission/selection points will automatically be disqualified from admission to the Program.
3. A typed list of all current courses.

Acceptance letters will be mailed within 30 days of the application deadline. Please do not call the office to inquire about the status of your selection.

Students who have been accepted into the program must attend a mandatory orientation. The date for that orientation will be included in the acceptance letter packet.

Upon acceptance into the program, a physical examination and immunization record will be required. Final acceptance into the Program will be conditional pending receipt of these documents by the deadline date given in the admission packet. The student's health care provider must indicate the student's capability to undertake the essential functions of the program and immunizations must be up to date for acceptance in the program to be finalized. The forms necessary for this documentation will be given at the mandatory orientation.

Please note that drug screens and background checks are required prior to the clinical semester. Please see the MEDL student handbook for details.

REGISTRATION FOR FALL CLASSES

Registration for fall classes will begin before the deadline for MLT admission. Classes fill up quickly, so it is recommended that you go ahead and register for any general education fall courses. You will not able to register for MEDL courses prior to acceptance into the program, however, if you are accepted into the program, you will be guaranteed a spot in the MEDL courses. It is recommended that you go ahead and register for any general educations courses you may still need (especially if you need Chemistry). You may also consider signing up for classes in your second choice of major. If you are accepted into the program, you may drop the courses from your second choice when you register for MEDL courses. If you are not accepted, you will be ready to begin your second choice major. PLEASE MEET WITH AN ADVISOR FOR ASSISTANCE WITH FALL REGISTRATION.

COURSE DESCRIPTIONS

****Individual course objectives are found on all course syllabi and college course outlines of record (COR). All up-to-date CORs can be found on the college website at https://wwwapps.ivytech.edu/cgi-bin/cor3/gpcourse_list.cgi**

MEDL 101 Fundamentals of Laboratory Techniques 3 Credits
Prerequisites: Program Chair Approval. This course introduces the elementary skills required in the medical laboratory. Subjects covered include: quality control, pipetting skills, venipuncture techniques, microscopic skills, infection control, laboratory math and laboratory safety.

MEDL 102 Routine Analysis Techniques 3 Credits
Prerequisites: Program Chair Approval. This course deals with the principles, practices and clinical laboratory techniques associated with the routine analysis of urine.

MEDL 200 Hemostasis Theory and Practice 1 Credit
Prerequisites: Program Chair Approval. Continues the study of principles and procedures in hemostasis. The course introduces procedures which lie outside those routinely performed and includes clinicopathologic correlations.

MEDL 201 Immunology Techniques 3 Credits
Prerequisites: Program Chair Approval. This course is designed to provide the student with a basic understanding of the principles of the human immunologic system as well as an understanding of, and experience in, routine testing.

MEDL 202 Immunohematology Techniques 3 Credits
Prerequisites: MEDL 201 and Program Advisor Approval. Provides instruction on the principles, practice, and procedures used for blood banking in the clinical laboratory.

MEDL 205 Hematology Techniques I 3 Credits
Prerequisites: MEDL 101, MEDL 102 and Program Advisor Approval. This course presents theory of blood formation and function and routine hematologic procedures, with emphasis upon differentiation of normal and commonly encountered abnormal blood cells. Also presents clinic pathologic correlations.

MEDL 206 Hematology Techniques II 3 Credits
Prerequisites: MEDL 205 and Program Advisor Approval. This course continues the study of principles and procedures in hematology. It introduces procedures which lie outside those routinely performed. Continues cell differentiation, with emphasis upon early and less commonly encountered abnormal cells, with associated special stains. Includes clinicopathologic correlations.

MEDL 207 Chemistry Techniques I 3 Credits
Prerequisites: CHEM 101 and Program Advisor Approval. Presents principles, procedures and clinicopathologic correlations in routine chemical analysis of the blood and other body fluids. Provides laboratory experiences in basic methods, selected to develop routine analytical abilities and to promote the ability to recognize sources of error.

MEDL 209 Routine Analysis Applications 1 Credit
Prerequisites: MEDL 102.Provides the student with study of the clinical applications of routine analysis in the hospital laboratory including physical, chemical, and microscopic examination of urine.

MEDL 210 Hematology Applications **3 Credits**
Prerequisites: MEDL 206 and Program Advisor Approval. Knowledge and skill development pertaining to the principles and techniques of hematology in the hospital laboratory.

MEDL 212 Immunology Applications **1 Credit**
Prerequisites: MEDL 201 and Program Advisor Approval. Studies and practices the clinical application of serology in the hospital laboratory.

MEDL 213 Immunohematology Applications **3 Credits**
Prerequisites: MEDL 202 and Program Chair Approval. Applications of principles and procedures used in blood banking in the hospital laboratory are taught in the clinical laboratory setting.

MEDL 215 Parasitology and Mycology **1 Credit**
Prerequisites: MEDL 222.Examines the isolation, identification, life cycles and disease processes of pathogenic and opportunistic fungi and parasites.

MEDL 218 Clinical Pathology **3 Credits**
Prerequisites: Program Advisor Approval. The course is a review course in preparation for the National Registry Examination and will include current testing procedures, disease conditions, diagnosis, etiologies, clinical symptoms and related laboratory findings.

MEDL 221 Clinical Microbiology Applications **3 Credits**
Prerequisites: MEDL 222 and Program Chair Approval. Provides the student with the study of applications and clinical practices of microbiology found in a clinical laboratory.

MEDL 222 Microbiology Techniques **3 Credits**
Prerequisites: MEDL 101, MEDL 102 and Program Chair Approval. This course will instruct the student in the principles of bacteriology including: gram-negative and gram-positive bacilli and cocci, fastidious organisms and an overview of anaerobic organisms and acid-fast bacteria. Instruction in basic laboratory techniques in clinical bacteriology will also be included.

MEDL 224 Chemistry Applications **3 Credits**
Prerequisites: MEDL 207 and MEDL 227 and Program Chair Approval. Corequisites: MEDL 227. Study and practice of the analytical aspects of clinical chemistry in the hospital laboratory.

MEDL 227 Chemistry Techniques II **2 Credits**
Prerequisites: MEDL 207 and Program Chair Approval. Continues the study of principles, procedures and clinicopathologic correlations in the chemical analysis of blood and other body fluids. Introduces procedures which lie outside those routinely performed in the clinical chemistry laboratory, including clinicopathologic correlations

Ivy Tech Community College Southern Indiana
Key Contacts

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