Associate Degrees & Certificates

Medical Laboratory Technology
Overview
Associate of Applied Science

PURPOSE: The Medical Laboratory Technology major is designed to prepare students for certification and employment as Medical Laboratory Technicians. Upon satisfactory completion of the program, the student is eligible to apply for national certification examinations. With satisfactory completion of the national certification exam, students are eligible to pursue a Bachelor’s degree in Clinical Laboratory Science with either Virginia Commonwealth University or Old Dominion University.

OCCUPATIONAL OBJECTIVES: Positions for Medical Laboratory Technicians are available in hospitals, private laboratories, physicians’ offices, health departments, and industrial medical laboratories.

ADMISSION REQUIREMENTS: General college curricular admission and program specific criteria

PROGRAM NOTES: Students must be accepted to this program to enroll in MDL major/clinical courses (MDL 110 and higher).

1. Students interested in the Medical Laboratory Technology program should first enroll in the Pre-Medical Laboratory Technology (MDL) Career Studies Certificate (CSC) to complete the prerequisite courses. Completion (or near completion) of the Pre-Medical Laboratory Technology CSC is required for admission to the program.
2. Upon satisfactory completion of the five-semester AAS degree, graduates will be eligible to take the Medical Laboratory Technology examinations (e.g., ASCP, AMT, or equivalent) for national certification. The national certification exam is not a requirement for graduation; however, it is strongly recommended and may be required for employment, depending upon the employer.
3. Upon satisfactory completion of the national certification exam, graduates are eligible to pursue a bachelor’s degree in Clinical Laboratory Science with either Virginia Commonwealth University or Old Dominion University.
4. It is recommended that the students have appropriate health insurance. Students are responsible for covering the cost of medical care that they may require while in the clinical setting.
5. The MDL courses may be taken for retraining by certified technologists who have been out of the field for a period of time. While admission to the program is not required, permission of the program head is required prior to registration for MDL courses.

Courses in the program are offered on campus as well as via distance learning. Students in the distance program must attend mandatory laboratory classes at college-designated sites or may be required to come to campus for labs. Tests may be taken at an approved testing center as determined by the faculty member and the program head.

Medical Laboratory Technology AAS Student Learning Outcomes:

1. Exhibit patient confidentiality within HIPAA parameters;
2. Demonstrate consistent safe practice within industry-level safety standards;
3. Demonstrate job entry-level precision and accuracy in performing procedures;
4. Formulate accurate reports within industry-level reporting parameters;
5. Analyze and record test and quality control data within industry-level accuracy standards;
6. Distinguish reportable vs. non-reportable test results using established industry criteria;
7. Troubleshoot non-reportable test results;
8. Discuss laboratory testing in terms of theory, technique, quality control, and interpretation; and
9. Perform routine testing of adult, infant, and geriatric patient samples in specified rotations.

Application Requirements:

1. Admission to the MDL program is competitive and only a limited number of students will be accepted.
2. A criminal background check, drug screen, and documentation of immunizations are required prior to placement for clinical rotations.
3. To be eligible for admission into the MDL program and courses, applicants must have completed designated prerequisites included in the CSC.
4. Completion of the Pre-Medical Laboratory Technology CSC does not guarantee admission to the AAS degree program. Transfer students must declare the Pre-Medical Laboratory Technology CSC as their major until formally admitted to the program.
5. Applicants must complete and submit an MDL application portfolio to the program director for consideration. Instructions for completing the Medical Laboratory Technology application packet are located at: reynolds.edu/onlinecatalog/documents/MDL-Application-Packet.pdf.

The National Accrediting Agency for Clinical Laboratory Science (NAACLS) describes entry-level competencies for the medical laboratory technician as follows: The medical laboratory technician will possess the entry-level competencies necessary to perform routine clinical laboratory tests in areas, such as clinical chemistry, hematology/hemostasis, immunology, immunohematology/transfusion medicine, microbiology, urine and body fluid analysis, and laboratory operations.

The level of analysis ranges from waived and point of care testing to complex testing encompassing all major areas of the clinical laboratory. The medical laboratory technician will have diverse functions in areas of pre-analytical, analytical, and post-analytical processes. The medical laboratory technician will have responsibilities for information processing, training, and quality control monitoring wherever clinical laboratory testing is performed.

Reynolds Medical Laboratory Technology Program Outcomes

The educational experiences in the Medical Laboratory Technology program are designed to ensure that students are well prepared to enter the profession of medical laboratory technology and continue to learn throughout their professional career. At completion of the program, graduates will be able to:

1. Exhibit patient confidentiality within HIPAA parameters;
2. Demonstrate consistent safe practice within industry-level safety standards;
3. Demonstrate job entry-level precision and accuracy in performing procedures;
4. Formulate accurate reports within industry-level reporting parameters;
5. Analyze and record test and quality control data within industry-level accuracy standards;
6. Distinguish reportable vs. non-reportable test results using established industry criteria;
7. Troubleshoot non-reportable test results;
8. Discuss laboratory testing in terms of theory, technique, quality control, and interpretation; and
9. Perform routine testing of adult, infant, and geriatric patient samples in specified rotations.

The National Accrediting Agency for Clinical Laboratory Science (NAACLS) describes entry-level competencies for the medical laboratory technician as follows: The medical laboratory technician will possess the entry-level competencies necessary to perform routine clinical laboratory tests in areas, such as clinical chemistry, hematology/hemostasis, immunology, immunohematology/transfusion medicine, microbiology, urine and body fluid analysis, and laboratory operations.

The level of analysis ranges from waived and point of care testing to complex testing encompassing all major areas of the clinical laboratory. The medical laboratory technician will have diverse functions in areas of pre-analytical, analytical, and post-analytical processes. The medical laboratory technician will have responsibilities for information processing, training, and quality control monitoring wherever clinical laboratory testing is performed.

Reynolds Medical Laboratory Technology Program Outcomes

The educational experiences in the Medical Laboratory Technology program are designed to ensure that students are well prepared to enter the profession of medical laboratory technology and continue to learn throughout their professional career. At completion of the program, graduates will be able to:

1. Exhibit patient confidentiality within HIPAA parameters;
2. Demonstrate consistent safe practice within industry-level safety standards;
3. Demonstrate job entry-level precision and accuracy in performing procedures;
4. Formulate accurate reports within industry-level reporting parameters;
5. Analyze and record test and quality control data within industry-level accuracy standards;
6. Distinguish reportable vs. non-reportable test results using established industry criteria;
7. Troubleshoot non-reportable test results;
8. Discuss laboratory testing in terms of theory, technique, quality control, and interpretation; and
9. Perform routine testing of adult, infant, and geriatric patient samples in specified rotations.

Application Requirements:

1. Admission to the MDL program is competitive and only a limited number of students will be accepted.
2. A criminal background check, drug screen, and documentation of immunizations are required prior to placement for clinical rotations.
3. To be eligible for admission into the MDL program and courses, applicants must have completed designated prerequisites included in the CSC.
4. Completion of the Pre-Medical Laboratory Technology CSC does not guarantee admission to the AAS degree program. Transfer students must declare the Pre-Medical Laboratory Technology CSC as their major until formally admitted to the program.
5. Applicants must complete and submit an MDL application portfolio to the program director for consideration. Instructions for completing the Medical Laboratory Technology application packet are located at: reynolds.edu/onlinecatalog/documents/MDL-Application-Packet.pdf.
6. Fully qualified students will be ranked according to GPA, prior degrees achieved, and a completed application packet. (See the program application packet for full explanation of ranking of applicants.)
7. A minimum GPA of 2.5 is required for consideration.
8. Official transcripts from all previously attended colleges to Central Admissions and Records.
9. Advanced placement opportunities are based on evaluation of transcripts and clinical work experience, and must be discussed with the program head.

Application Deadlines:
- Fall Start: May 15 with notification in mid-June
- Spring Start: October 1 with notification in early November

Medical Laboratory Technology Application Packet:
The application packet is available at the following url: reynolds.edu/_onlinecatalog/documents/MDL-Application-Packet.pdf

Medical Laboratory Technology Student Handbook 2017-2018:
This handbook is available at the following url: http://www.reynolds.edu/mlt.

ESSENTIAL SKILLS REQUIREMENTS: Students entering the MDL program must possess the following skills:
- Sufficient eyesight, including color vision, to observe microscopic cells and features within cells, read records, manipulate equipment, and visually read procedures, graphs, and test results.
- Sufficient hearing to communicate with patients and members of the health care delivery team, monitor patients using electronic equipment, and hear necessary sounds during operation of equipment.
- Satisfactory speaking, reading, and writing skills to effectively communicate in English in a timely manner.
- Sufficient gross and fine motor coordination to exhibit excellent eye-hand coordination and dexterity to manipulate equipment.
- Sufficient ability to lift, stoop, or bend in the delivery of safe laboratory testing.
- Satisfactory physical strength and endurance to be on feet for extended periods and to move heavy equipment and supplies. Sitting, walking, bending, and reaching motions are also requirements of most positions.
- Satisfactory intellectual, emotional, and psychological health and functioning to ensure patient safety and to exercise independent judgment and discretion in performing assigned tasks.
- Satisfactory time management of multiple priorities and stimuli to operate in fast-paced environments.
- Sufficient analysis, synthesis, and comprehension skills to follow detailed instructions and effectively operate in a laboratory setting.

PROGRESSION THROUGH THE PROGRAM:
1. Students who have a break in their enrollment must meet with the program head to review current enrollment requirements. In some cases, students may be required to retake MDL courses.
2. All students must successfully pass a comprehensive clinical readiness assessment prior to placement in clinical rotations. Attendance during one summer session may be required.
3. Any student who receives a final grade lower than “C” in any MDL course must repeat the course. Students failing to obtain “C” or better in any two MDL prefix courses will not be able to progress in the MDL program.
4. Courses with the MDL prefix must be completed successfully prior to entering the final coordinated internship courses.

CLINICAL PROGRESSION: The college offers this program in affiliation with the health care agencies and practitioners in the communities the college serves. The college relies on its community affiliates to provide clinical education opportunities for its students, expert clinical preceptors, and course instructors for many courses. The often rapid changes in health care law, standards of practice, technology, and content of credentialing examinations increasingly necessitate sudden changes in the program’s course content, policies, procedures, and course scheduling. As a result, the college cannot guarantee every student continuous and uninterrupted clinical and course instruction as outlined in the printed catalog curriculum for this program. Circumstances beyond the control of the college may necessitate the postponement of course offerings or changes in the sequencing and/or location of scheduled courses or clinical assignments. Additionally, the college may have to change the instructor for courses after instruction has started.

FINANCIAL REQUIREMENTS: In addition to the regular college tuition and fees, the Medical Laboratory Technology program requires the items listed below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books and Supplies (varies)</td>
<td>$2,000.00</td>
</tr>
<tr>
<td>Uniforms and Shoes</td>
<td>$200.00</td>
</tr>
<tr>
<td>Lab Tests and Immunizations (varies)</td>
<td>$300.00</td>
</tr>
<tr>
<td>Laboratory Coat (varies)</td>
<td>$25.00</td>
</tr>
<tr>
<td>Background Check (varies)</td>
<td>$45.00</td>
</tr>
<tr>
<td>Drug Screen (varies)</td>
<td>$25.00</td>
</tr>
<tr>
<td>Travel to Clinical Affiliates</td>
<td>Variable</td>
</tr>
</tbody>
</table>

Note: An additional fee for the national registry examination is not a requirement for graduation and is not included above. The fee is approximately $215.00.

ANNUAL PROGRAM STATISTICS

<table>
<thead>
<tr>
<th></th>
<th>2013-14</th>
<th>2014-15</th>
<th>2015-16</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCP BOC Exam¹</td>
<td>91%</td>
<td>95%</td>
<td>100%</td>
<td>95%</td>
</tr>
<tr>
<td>Attrition Rate</td>
<td>11%</td>
<td>0%</td>
<td>5%</td>
<td>7%</td>
</tr>
</tbody>
</table>
Associate Degrees & Certificates

<table>
<thead>
<tr>
<th># Graduated</th>
<th>23</th>
<th>23</th>
<th>19</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduation Rate</td>
<td>89%</td>
<td>100%</td>
<td>90%</td>
<td>96%</td>
</tr>
<tr>
<td>Graduate Placement Rate</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

1Pass within first year of program completion

**COMPUTER COMPETENCY REQUIREMENT:** Students in this program will meet the college’s computer competency requirement by successfully completing ITE 115 or CSC 155. Students can also meet this requirement by passing the college’s computer competency exam, administered in the testing centers on each campus, in which case they will receive college credit for ITE 115 or CSC 155. Students not passing the computer competency exam may retake the exam only once.

**PROGRAM ACCREDITATION AND ADMINISTRATION:** The Medical Laboratory Technology program is accredited by the National Accreditation Agency for Clinical Laboratory Sciences, 5600 N. River Rd., Suite 720, Rosemont, IL 60018 (773-714-8880 and NAACLSinfo@naacls.org). The program director is D. Gayle Melberg, MS, MT (ASCP), an experienced medical laboratory scientist and certified medical technologist.

### Roadmap

<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>LEC. HRS.</th>
<th>LAB. HRS.</th>
<th>CRS. HRS.</th>
<th>CRE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDV 100</td>
<td>College Success Skills</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>MTH 155 or MTH 161</td>
<td>Statistical Reasoning or Precalculus I</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CHM 101 or CHM 111</td>
<td>Introductory Chemistry or General Chemistry I</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BIO 101 or BIO 141</td>
<td>General Biology I or Anatomy and Physiology I</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>ENG 111</td>
<td>College Composition I</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MDL 100</td>
<td>Introduction to Medical Laboratory Technology</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL** | 14 | 9 | 17 |

ITE 115 | Introduction to Computer Applications and Concepts | 3 | 0 | 3 |

**3** | Social/Behavioral Science Elective | 3 | 0 | 3 |

MDL 125 | Clinical Hematology I | 2 | 3 | 3 |

MDL 251 | Clinical Microbiology I | 2 | 4 | 3 |

BIO 102 or BIO 142 | General Biology II or Anatomy and Physiology II | 3 | 3 | 4 |

**3** | Personal Wellness Elective | 0| 0-1| 0-2| 1 |

**TOTAL** | 13-14 | 10-12 | 17 |

MDL 190 | Coordinated Practice in Phlebotomy | 0 | 8 | 2 |

MDL 210 | Immunology and Serology | 2 | 3 | 3 |

**3** | Humanities/Fine Arts Elective | 3 | 0 | 3 |

MDL 110 | Urinalysis and Body Fluids | 2 | 3 | 3 |

**TOTAL** | 7 | 14 | 11 |

MDL 216 | Blood Banking | 2 | 3 | 3 |

MDL 225 | Clinical Hematology II | 2 | 3 | 3 |

MDL 252 | Clinical Microbiology II | 2 | 3 | 3 |

MDL 262 | Clinical Chemistry and Instrumentation II | 3 | 3 | 4 |

**TOTAL** | 9 | 12 | 13 |

MDL 281 | Clinical Correlations (online course) | 1 | 0 | 1 |

MDL 290 | Coordinated Practice in Blood Bank/Transfusion Medicine | 0 | 8 | 2 |
REYNOLDS COMMUNITY COLLEGE

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDL 290⁵,⁹</td>
<td>Coordinated Practice in Clinical Chemistry</td>
<td>0 8 2</td>
<td></td>
</tr>
<tr>
<td>MDL 290⁵,⁹</td>
<td>Coordinated Practice in Hematology</td>
<td>0 8 2</td>
<td></td>
</tr>
<tr>
<td>MDL 290⁵,⁹</td>
<td>Coordinated Practice in Microbiology</td>
<td>0 8 2</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>1 32 9</td>
<td></td>
</tr>
</tbody>
</table>

Total Minimum Credits for AAS Degree in Medical Laboratory Technology: 67

* This course is included in the Pre-Medical Laboratory Technology Career Studies Certificate.

¹ MTH 155 meets the graduation requirement for the AAS degree in Medical Laboratory Technology. Students planning to pursue a four-year degree should take MTH 161.

² CHM 101 meets the graduation requirement for the AAS degree in Medical Laboratory Technology. Students planning to pursue a four-year degree should take CHM 111.

³ A list of approved general education electives (humanities/fine arts, social/behavioral sciences, mathematics, science, and personal wellness) is provided in the General Education section of the catalog under Curriculum Planning and Design.

⁴ This course is offered only in the spring term.

⁵ For actual student contact laboratory hours per week for MDL 190 and MDL 290 courses, please refer to the course descriptions.

⁶ MDL 210 is a prerequisite or co-requisite for MDL 216.

⁷ This course is offered only in the fall term.

⁸ CHM 101 or CHM 111 is a prerequisite or co-requisite for MDL 262.

⁹ The final semester consists of clinical rotations with area hospitals or clinics.