

# Medical Laboratory Science Handbook & Rotation Manual

Karen Burgess

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## WELCOME TO THE MEDICAL LABORATORY SCIENCE PROGRAM AT THOMAS UNIVERSITY!

The MLS Program Handbook has been developed to assist you with your education. It is important to read and become familiar with the information presented in this handbook. Please refer to this as a main source of information regarding operational policies and procedures of the program.

The instructional method of most MLS courses is provided via Blackboard, a hybrid program. To determine if you are prepared to enroll in online courses, visit the TU website at [www.thomasu.edu](http://www.thomasu.edu). Click **Current Students** and then **Are You Ready?** Follow the prompts and complete the tutorials to determine your readiness for online instruction.

This program handbook does not constitute a contract between Thomas University and its students or applicants for admission or with any other person. The MLS program faculty reserves the right to change, without notice, any statements in this handbook. Changes will become effective whenever the Vice President of Academic Affairs and MLS Program Director so determine. Information on changes will be available to students in a reasonable and timely manner by the MLS Program Director.

Although the MLS program faculty members have made every reasonable effort to attain factual accuracy in this handbook, no responsibility is assumed for editorial, clerical, or printed errors, or errors occasioned by mistakes. The MLS program faculty have attempted to present information that, at the time of preparation for printing, most accurately describes the program policies. If there is a conflict between something in the MLS Program Handbook and the University's Student Handbook or University Catalog regarding university issues, the University Handbook and Catalog would prevail.

Completion of the Medical Laboratory Science Program at Thomas University does not guarantee employment for graduates. Successful completion of competencies taught in the program should make the student eligible to sit for several certification exams and be competitive in the current job market.

## PROGRAM TELEPHONE NUMBERS AND ADDRESSES

### CHAIR OF MATH AND SCIENCE /PROGRAM DIRECTOR/ASSISTANT PROFESSOR OF MLS

Karen Burgess MLS(ASCP)<sup>CM</sup> [kburgess@thomasu.edu](mailto:kburgess@thomasu.edu)

Phone: 229-226-1621 ext 1088

Fax: 229-584-2421

### ASSOCIATE PROFESSOR / DEAN OF OPERATIONS

Jill Dennis PhD, MLS(ASCP)<sup>CM</sup> [jdennis@thomasu.edu](mailto:jdennis@thomasu.edu)

Phone: 229-226-1621 ext 1046

### ASSISTANT PROFESSOR

To be announced

### ASSISTANT PROFESSOR

To be announced

### MLS PROGRAM ASSISTANT/LAB ASSISTANT

Cassie Graviett, MLT(AMT) [cgraviett@thomasu.edu](mailto:cgraviett@thomasu.edu)

Office: 229-226-1621 Ext. 1159

Fax: 229-584-2421



## ACCREDITATION

The Thomas University's Medical Laboratory Science programs are accredited by the National Accrediting Agency for Clinical Laboratory Services (NAACLS) through the United States Department of Education and the Southern Association of Colleges and Schools (SACS).

Contact information for NAACLS:

National Accrediting Agency for Clinical Laboratory Sciences

5600 N. River Rd. Suite 720,

Rosemont, IL 60018-5119

[www.naacls.org](http://www.naacls.org)

773.714.8880

## DESCRIPTION OF THE MEDICAL LABORATORY SCIENCE PROFESSION

Medical laboratory science is a profession dedicated to the prevention, diagnosis, and treatment of disease. It combines the challenges of medicine, the basic sciences of biology and chemistry, and the clinical sciences into a very satisfying professional career. The major clinical sciences within medical laboratory science are medical microbiology, clinical chemistry, hematology and coagulation, and immunohematology.

Medical laboratory scientists function as detectives, investigating and determining the causes of diseases. They perform routine and complex analyses, utilizing the latest in biomedical instrumentation and molecular diagnostic techniques. They are responsible for the accuracy of their results and are expected to correlate interdependent test results and physiological conditions. Their work may include supervision and teaching.

The profession of medical laboratory science is dynamic, continually changing to reflect scientific and medical discoveries. Due to their educational background, graduates enjoy a wide range of career opportunities. Many medical laboratory scientists are employed in hospital and private laboratories where they utilize their expertise in such sophisticated areas as andrology/embryology, bone marrow transplantation, cancer research, forensic toxicology, molecular diagnostic testing, and HLA tissue typing to name a few. Others work chiefly in health

agencies, industrial medical or biomedical laboratories, pharmaceutical companies, research laboratories, forensic laboratories, and veterinary clinics.

The ability to relate to people, a capacity for calm and reasoned judgment and a demonstration of commitment to the patient are essential qualities. Communication skills extend to consultative interactions with members of the healthcare team, external relations, customer service, and patient education. Laboratory professionals demonstrate ethical and moral attitudes and principles that are necessary for gaining and maintaining the confidence of patients, professional associates, and the community.

The B.S. degree in medical laboratory science includes courses in basic sciences, management, research, medical sciences, and off-campus clinical experiences in a variety of hospitals. Knowledge gained through these courses, as well as the hands-on laboratory activities experienced by students, give them the competence needed to gain employment upon graduation. Graduates are eligible for national certification examinations.

The medical laboratory science major also functions as a pre-medical curriculum for those interested in medical school, and provides a basis for graduate study in medical laboratory science or related areas such as clinical chemistry, immunology, molecular biology, toxicology, forensic sciences, management, or medical laboratory science education.

## **PROGRAM GOALS AND PHILOSOPHY**

The purpose of the Thomas University Medical Laboratory Science program is to provide educational opportunities to individuals that will enable them to obtain the knowledge, skills, abilities, and attitudes necessary to succeed as clinical laboratory scientists. General goals of the program include the following:

1. To provide education, which acknowledges individual differences and respects the right of individuals to seek fulfillment of educational needs.
2. To provide an environment which encourages the individual to benefit and contribute as a partner in the economic progress, development, and stability of their communities.
3. To provide education which develops the potential of each student to become a productive, responsible, and upwardly mobile member of society.
4. To provide quality medical laboratory science education in an atmosphere that fosters interest in and enthusiasm for learning.
5. To prepare graduates to function as accountable and responsible members within their field of endeavor.

6. To prepare graduates to function as safe and competent practitioners in the medical laboratory science field.
7. To prepare graduates with the highest level of competence possible given the constraints of the interests and ability levels of the individual.
8. To provide educational and related services without regard to race, color, national origin, religion, sex, handicapping condition, academic disadvantage, or economic disadvantage.
9. To foster employer participation, understanding, and confidence in the instructional process and the competence of medical laboratory science graduates.
10. To provide guidance to medical laboratory science students to assist them in pursuing educational opportunities that maximize their professional potential.
11. To encourage graduates to recognize and to act upon individual needs for continuing education as a function of growth and maintenance of professional competence.

Important attributes for success of program graduates are **analytical thinking, problem solving, and the ability to apply technology to the work requirement**. Medical Laboratory Science is a dynamic profession; therefore, careful attention to current curriculum and up-to-date instructional equipment is required. The program promotes the concept of change as the technology evolves and nurtures the spirit of involvement in lifelong professional learning.

Thomas University accepts the following concepts concerning education in medical laboratory science:

1. The scientist is a skilled person who performs laboratory tests on body fluids under the direction of a qualified physician, pathologist or laboratory director.
2. The scientist evaluates and correlates clinical laboratory test results performed on a patient but does not make a diagnosis from these results.
3. The student scientist should be educated to assess the needs of the patient and provide laboratory data within the scope of his/her training.
4. The educational standards and administrative policies of the program in medical laboratory science should conform to those approved by the National Accrediting Agency for Clinical Laboratory Sciences.

5. All instruction should be geared to the educational level and experience of the individual.
6. An advisory committee, which is representative of the professionals concerned with the training and employment of clinical laboratory scientists, should provide guidance in the planning, organizing, and operation of the program.

## SUPPORT OF INSTITUTIONAL MISSION

The basic beliefs, attitudes, and concepts that are the foundation of the Thomas University Medical Laboratory Science programs are expressed in the philosophy of the program in the following statements:

The Thomas University Medical Laboratory Science program is a program of study compatible with the mission and policies of Thomas University and encourages each medical laboratory science student to benefit and contribute as a partner in the economic development and stability of their communities. The philosophy of the Medical Laboratory Science program is founded on the value attributed to individual students, the medical laboratory science profession, and technical and professional education.

The Thomas University Medical Laboratory Science program of study is consistent with the philosophy and purpose of the institution. The program provides academic foundations in communications, mathematics, intellectual curiosity, creative activity, critical thinking and human relations, as well as technical fundamentals. Program graduates are instructed in the underlying fundamentals of medical laboratory science and are well prepared to enter the workforce or to continue their education in graduate school.

The Thomas University Medical Laboratory Science program provides the knowledge and skills to qualify participants for the medical laboratory science profession. Upon completion of the program, students are eligible to sit for national certification examinations thus enabling them to achieve professional employment in the field.

The program structure acknowledges individual differences and provides opportunities for students to seek fulfillment of their respective educational goals. The program does not discriminate on the basis of race, color, national origin, religion, sex, handicapping condition, academic disadvantage, or economic disadvantage.

To assist each student in attaining his or her respective potential within the program, both the instructor and the student incur an obligation in the learning process. The instructor is a manager of instructional resources and organizes instruction in a manner, which promotes learning. The student assumes responsibility for learning by actively participating in the learning process.

The philosophy of the Thomas University Medical Laboratory Science program reflects a desire to achieve educational excellence.

The philosophy of the Thomas University Medical Laboratory Science program reflects a commitment to meet health care needs. It is further founded on the value attributed to individual students, the medical laboratory science profession, and technical and professional education.

The philosophy statement of the Thomas University Medical Laboratory Science programs is approved by the administration of the institution.

## CLS PROGRAM OBJECTIVES

The specific objectives of the program are to provide skilled clinical laboratory scientists who perform effectively by:

1. Collecting, processing, and analyzing biological specimens and other substances.
2. Performing analytical tests of body fluids, cells, and other substances.
3. Recognizing factors that affect procedures and results, and taking appropriate actions within predetermined limits when corrections are indicated.
4. Performing and monitoring quality control with predetermined limits.
5. Performing preventive and corrective maintenance of equipment and instruments or referring to appropriate sources for repair.
6. Applying principles of safety and universal precautions.
7. Demonstrating professional conduct and interpersonal communication skills with patients, laboratory personnel, and other health care professionals, and with the public.
8. Recognizing the responsibilities of other laboratory and health care personnel and interacting with them with respect for their jobs and patient care.
9. Applying basic scientific principles in learning new techniques and procedures.
10. Relating laboratory findings to common disease processes.

11. Establishing and maintaining continuing education as a function of growth and maintenance of professional competence.

## ADMISSION TO THE MLS PROGRAM

### STANDARDS

Traditional MLS students may enter the university at any year in the academic program with a declared interest in the Medical Laboratory Science Program for the purpose of advisement. Students that typically apply to this program will be in their undergraduate study; however, students with conferred bachelor's degrees in a biologic science may apply for a second B.S. degree in MLS.

Consideration for admission into the MLS Program is based on the following criteria:

1. All core competencies have been completed with a C (70%) or better.
2. GPA of 2.75 overall
3. Completion of the admission packet

Upon acceptance into the program, students will be asked to attend an orientation in which they must submit to:

1. Physical exam within the last 6 months
2. Immunization record to include Hepatitis B series or deferral form
3. PPD within 6 months
4. Drug Screen
5. Criminal Background Check
6. Student information form
7. "Head-shot", passport type photo for identification purposes of our distance students
8. Signed FERPA form

## PROCEDURE

1. Submit an application (can be done online – [www.thomasu.edu](http://www.thomasu.edu)) with a required non-refundable fee.
2. Provide official academic and financial aid transcripts from **ALL** colleges and/or universities previously attended. Transcripts will be reviewed by the University Registrar and MLS Program Director to determine transferability.
3. If needed, fill out all financial aid forms (can be done online).
4. Complete and submit Applicant Packet to program assistant

Once all transcripts are in admissions, reviewed and the applicant packet submission is complete, you will receive a formal acceptance letter from the program director. Once you receive this letter you should:

1. Contact the MLS Program Director to determine a curriculum plan for program completion.
2. Schedule the C-WRTE exam, a critical writing, reading, and thinking exam required for upper-level course work.

## ALTERNATE STATUS

Currently, the maximum number of MLS students accepted in each cohort is 15. Students will be admitted in order of admission requirements completion. If more than 15 students apply to a cohort, an alternate list will be generated. Students may be admitted as alternates provided they have met basic MLS program admission requirements. Any student readmitted into the MLS program will be readmitted as an alternate.

## CLINICAL TRAINING

Clinical training consists of clinical rotations through the different departments of clinical laboratories. New affiliates are added each year depending on the location of students. Clinical sites are limited, and all sites will be awarded at the discretion of the Program Director based upon GPA, student rank in the cohort, and professionalism.

The program director will initiate the formal contract process and provide information on what is expected of the clinical site. If you are granted a clinical internship site, you must accept the rotation awarded to you. The MLS program director **is not** responsible for procuring an alternate clinical rotation site.

Due to the fact that students cannot exceed the student to clinical instructor ratio of 1:1, students may be placed on a wait list for clinical completion, based on program GPA.

Travel to and from these sites is entirely the student's responsibility. Some clinical sites are exclusive to a single student, and are not available for additional students. Extensive information regarding clinical rotations can be found in the Clinical Rotation manual.

## IMMUNIZATIONS

### HEPATITIS VACCINE

Health-care personnel are among those at increased risk for contraction of Hepatitis B virus infections due to their frequent contact with human serum and other body fluids. Immunization against the Hepatitis B virus is the principal means of preventing infection. For the student's protection, it is strongly recommended (but not mandatory) that all students be immunized with the recombinant Hepatitis B virus vaccine.

A student who wishes to be immunized may receive the injections from his or her family physician. Such immunizations should begin as early as possible. The vaccine is administered in a series of three injections given at appropriate intervals over a six-month period. Students who choose NOT to receive the vaccine must indicate so in writing. See the Hepatitis Deferral Form in the form section of the handbook.

### OTHER IMMUNIZATIONS

Required documentation of the following testing / immunizations include tetanus, measles, mumps, rubella (MMR), varicella zoster, and tuberculosis (PPD).

### INSURANCE

#### *Professional Liability*

Professional liability insurance is needed to protect you as a student training in the hospital setting. Thomas University provides coverage to each student. Certificates of liability insurance for each clinical site are provided to the clinical site and a copy of each is accessible through the MLS Program Director.

Personal medical insurance is not required for program admission. However, if a student is injured in a clinical site, he/she is personally responsible for any costs incurred as a result of that injury.



## ESSENTIAL FUNCTIONS

Applicants/students must be able to perform these essential functions. For those applicants requesting reasonable accommodations such as compensatory techniques and/or assistive devices, you must also be able to demonstrate the ability to become proficient in these essential functions.

If your ability to perform these essential functions depends upon accommodations being provided, be advised that requests for accommodations must be presented to Student Support Services and must be accompanied by appropriate medical, psychological and/or psychiatric documentation to support this request. Students requesting accommodations should contact the professors at the beginning of the semester and register with Pauline Patrick, Director of Disabilities Services. ([ppatrick@thomasu.edu](mailto:ppatrick@thomasu.edu)). A copy of this policy is found in the applicant packet and must be submitted with the student's signature before admission to the program is approved.

<b>Essential Function</b>	<b>Technical Standard</b>	<b>Some Examples of Necessary Activities</b>  <b>(not all inclusive)</b>	<b>Yes</b>	<b>No</b>
<b>Critical Thinking</b>	Critical thinking ability sufficient for clinical judgment	Identify cause-effect relationships in clinical situations; evaluate patient or instrument responses; synthesize data; draw sound conclusions		
<b>Interpersonal Skills</b>	Interpersonal abilities sufficient to interact with individuals, families, and groups from a variety of social, emotional, cultural, and intellectual backgrounds.	Establish rapport with patients and colleagues. Use therapeutic communication (attending, clarifying, coaching, facilitating, teaching). Function (consult, negotiate, share) as part of a team.		

<b>Communication Ability</b>	Communication abilities sufficient for effective interaction with others in spoken and written English.	Explain procedures; listen attentively; communicate problems verbally and/or written; document and interpret instructions.		
<b>Physical Endurance</b>	Remain continuously on task for several hours while standing, sitting, moving, lifting, and/or bending.	Stand, sit, and/or walk for extensive periods of time while operating instrumentation in several departments.		
<b>Mobility</b>	Physical abilities sufficient to move from area to area and maneuver in small spaces; full range of motion; manual and finger dexterity; and hand-eye coordination	Operating more than one instrument at a time; troubleshooting instrumentation.		
<b>Motor Skills</b>	Gross and fine motor abilities sufficient to provide safe and effective patient care and operate equipment.	Calibrate and use equipment; lift and operate equipment with necessary strength and dexterity; both hands are needed for gripping and doing precision work.		
<b>Adequate Height</b>	Ability to reach overhead equipment, reagents and supplies; ability to operate all lab equipment.	Taking reagent inventory; reading and changing temperature charts; turning wall-mounted monitors and gauges on and off.		
<b>Hearing Ability</b>	Auditory ability sufficient to monitor and assess health needs.	Hear monitor alarms, emergency signals, cries for help.		

<b>Visual Ability</b>	Normal or corrected visual ability sufficient for specimen and equipment observation and assessment; ability to discriminate between subtle changes in density (black to gray) of a color in low light.	Observe sample color, consistency; read thermometers, charts, computer screens, digital print-outs, labels and gauges; interpret subtle color differences in diagnostic laboratory test kits, on stained microscopic slides, microbiology culture plates, and when using lab instruments.		
<b>Tactile Ability</b>	Tactile ability sufficient for physical assessment	Performing successful venipunctures.		
<b>Olfactory Ability</b>	Olfactory senses (smell) sufficient for maintaining environmental and patient safety.	Distinguish smells which are contributory to assessing patient samples and maintaining the patient's health status or environmental safety (fire).		
<b>Professional Attitude and Demeanor</b>	Ability to present professional appearance and implement measures to maintain own physical and mental health, and emotional stability.	Work under stressful conditions and irregular hours; be exposed to communicable diseases and contaminated body fluids; react calmly in emergency situations; demonstrate flexibility; show concern for others.		

Adapted from The Americans with Disabilities Act Implications for Nursing Education (March 1993)

## CLS PROGRAM OBJECTIVES

The specific objectives of the program are to provide skilled clinical laboratory scientists who perform effectively by:

1. Collecting, processing, and analyzing biological specimens and other substances.
2. Performing analytical tests of body fluids, cells, and other substances.
3. Recognizing factors that affect procedures and results, and taking appropriate actions within predetermined limits when corrections are indicated.
4. Performing and monitoring quality control with predetermined limits.
5. Performing preventive and corrective maintenance of equipment and instruments or referring to appropriate sources for repair.
6. Applying principles of safety and universal precautions.
7. Demonstrating professional conduct and interpersonal communication skills with patients, laboratory personnel, and other health care professionals, and with the public.
8. Recognizing the responsibilities of other laboratory and health care personnel and interacting with them with respect for their jobs and patient care.
9. Applying basic scientific principles in learning new techniques and procedures.
10. Relating laboratory findings to common disease processes.
11. Establishing and maintaining continuing education as a function of growth and maintenance of professional competence.

## ENTRY LEVEL COMPETENCIES OF THE MEDICAL LABORATORY SCIENTIST

At entry level, the medical laboratory scientist will possess the entry level competencies necessary to perform the full range of clinical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunochemistry/blood banking, Microbiology, Urine and body fluid analysis and Laboratory Operations, and other emerging diagnostics, and will play a role in the development and evaluation of test systems and interpretive algorithms.

The medical laboratory scientist will have diverse responsibilities in areas of analysis and clinical decision-making, regulatory compliance with applicable regulations, education, and quality assurance/performance improvement wherever laboratory testing is researched, developed or performed.

At entry level, the medical laboratory scientist will have the following basic knowledge and skills in:

1. Application of safety and governmental regulations and standards as applied to clinical laboratory science.
2. Principles and practices of professional conduct and the significance of continuing professional development.
3. Communications sufficient to serve the needs of patients, the public and members of the health care team.
4. Principles and practices of administration and supervision as applied to clinical laboratory science.
5. Educational methodologies and terminology sufficient to train/educate users and providers of laboratory services.
6. Principles and practices of applied study design, implementation and dissemination of results.

## CURRICULUM



MLS (Traditional)	Student Name
Advisor:	Home Phone:
Student ID #:	Cell Phone:
Semester Entry Date:	Personal Email:

### LOWER DIVISION COURSES (Core Curriculum)

University Studies (4 hours)	Semester & Year	Grade	Credits	Comments
<b>UNV 101</b> Freshman Success Seminar			1	*UNV 102 may be req'd
<b>UNV 103</b> Personal Wellness			1	
<b>UNV 201</b> Career Development			1	
<b>UNV 202</b> Introduction to Ethics			1	
<b>Communication (12 hours)</b>				
<b>CSC 120</b> Microcomputer Applications			3	
<b>SPE 105</b> Oral Communication for Professionals			3	
<b>ENG 101</b> Composition I			3	
<b>ENG 102</b> Composition II			3	
<b>CWRTE Status</b> (Pass/Fail/Not Taken)	Not Taken		0	*REA 111/311 may be req'd
<b>Science &amp; Math (14 hours)</b>				
<b>MTH 140 or 150</b> College Algebra or Pre-Calculus			3	
<b>CHM 101</b> General Chemistry I			4	
<b>CHM 102</b> General Chemistry II			4	
<b>STA 250</b> Introduction to Statistics			3	
<b>Social Sciences (12 hours)</b>				
<b>HIS 201, 202, or 203</b> US History and Government			3	<b>THREE 1 credit hour</b> (HIS 210, 211, 212, 213 214, 215) = <b>HIS 201</b>
<b>HIS 201, 202, or 203</b> US History and Government			3	
<b>PSY 201 Gen Psych</b>			3	
<b>SOC 201 Sociology</b>			3	
<b>**Humanities (6 hours)</b> <i>Choose two. At least one must be a HUM</i>				
<b>HUM 200, 201, 202, or 203</b> Survey of Western & Non-Western Culture			3	
<b>ART 240</b> Art Appreciation			3	
<b>FLM 210</b> Introduction to Film				
<b>REL 210</b> Introduction to World Religion				

*\*\*Transfer students may substitute any survey course in literature, philosophy, fine arts, or religion for the above surveys.*

Related to Program (20 hours)	Semester & Year	Grade	Credits	Comments
<b>BIO 101</b> Principles of Biology 1			4	
<b>BIO 261</b> Human Anatomy & Physiology I			4	
<b>BIO 262</b> Human Anatomy & Physiology II			4	
<b>CHM 107</b> Survey of organic chem			4	

NOTE: If a course is transferred in as a substitution for any required course, a **substitution form** must be filled out and signed.

**UPPER DIVISION (Program) COURSES**

<b>REQUIRED COURSES</b>	<b>Semester &amp; Year</b>	<b>Grade</b>	<b>Credits</b>	<b>Comments</b>
MLS 301 Clinical Lab Methods			3	
MLS 385 Parasit/Mycology/Virology			3	
MLS 412 Urinalysis & Body Fluids			2	
MLS 414 Immunology/Molec Diag			4	
MLS 321 Clinical Micro I			4	
MLS 421 Clinical Micro II			4	
MLS 331 Clinical Hematology & Coag I			4	
MLS 431 Clinical Hematology & Coag II			4	
MLS 341 Clinical Immunohematology I			4	
MLS 441 Clinical Immunohematology II			4	
MLS 351 Clinical Chemistry I			4	
MLS 451 Clinical Chemistry II			4	
MLS 452 Research Methods & Project			3	
MLS 460 Senior Seminar			3	
MLS 470 Laboratory Management & Supv.			3	
MLS 400 Internship I			3	
MLS 401 Internship II			5	
MLS 402 Internship III			5	
<b>TOTAL UPPER DIVISION CREDITS</b>			66	
<b>TOTAL LOWER DIVISION CREDITS</b>			64	
<b>TOTAL CREDITS TOWARD GRADUATION</b>			130	

## FEES AND EXPENSES

Thomas University operates on a semester basis. The cost of attendance per semester will likely change each fall semester, and this is reflected in the current Thomas University Catalog under Fees and Expenses. Currently the tuition is \$6615.00 per semester for 12-18 credit hours. This fee does not include graduation fees, books, uniforms or pinning fees.

### ADDITIONAL FEES:

Undergraduate Application Fee	\$ 35.00
International Application Fee	\$125.00
Undergraduate Graduation Fee	\$165.00
Pinning Fee (optional)	\$ 70.00
Internship fee (per semester)	\$ 75.00

## FINANCIAL AID

### TYPES OF FINANCIAL AID ASSISTANCE

Grants, loans, scholarships and the federal Work-Study Program are available through the financial aid office to help defray students' educational expenses.

Grants and scholarships do not have to be repaid. Loans must be repaid. Federal Work-Study Program awards are available for qualified students during the period of enrollment. Students must be enrolled at least half-time to receive the Federal Stafford Loan or Federal Parent Loan for Undergraduate Students (PLUS). Students must be enrolled full-time (12 or more hours) to receive the Georgia Tuition Equalization Grant (GTEG) and some scholarships offered by Thomas University. Other Federal assistance programs, such as the Federal Supplemental Educational Opportunity Grant and Federal Work Study are available.



## SCHOLARSHIPS

A number of partial scholarships are funded through the general funds of Thomas University. Award amounts may vary each semester depending on the amount of funds available. Institutional scholarships can be applied to tuition, fees and books and are awarded only after all Federal and State grants have been applied to a student's charges. Only one institutional scholarship per student, per semester, is permitted. Institutional scholarships carry no cash award. Recipients must be full-time students, in good academic standing, and have applied for all applicable state and federal grants. Scholarship awards are based on one or more of the following guidelines: academic performance, moral character, community or citizenship activities, financial need, and potential for benefiting from enrollment at Thomas University. Scholarship applications are available from the financial aid office. The deadline for all Thomas University scholarship applications (excluding athletic) is June 1st.

## FEDERAL GRANTS

### **Federal Pell Grant**

The Federal Pell Grant is a need-based grant with no repayment required and is designated for undergraduate students working toward a first bachelor degree. The amount of the grant is determined by the cost of attendance, the expected family contribution shown on the Student Aid Report, and the enrollment status. A Federal Needs Analysis is required. The Federal Pell Grant is intended to be the first and basic component of an undergraduate student's financial aid package. Students are encouraged to apply online at [www.fafsa.ed.gov](http://www.fafsa.ed.gov), however, paper FAFSAs are available in the Financial Aid Office if needed.

### **Federal Supplemental Educational Opportunity Grant (FSEOG)**

The FSEOG is a need-based grant with no repayment required and is designated for undergraduate students working toward a first bachelor degree. Priority goes only to those students who qualify for Federal Pell. A Federal Needs Analysis is required. FSEOG is a limited fund and priority will be given to those who have completed files by May 1.

## STATE GRANTS

### **Georgia Tuition Equalization Grant (GTEG)**

The GTEG is a non-need-based grant that provides funding for eligible Georgia residents attending qualified private colleges in Georgia. Students must be enrolled full-time (twelve or more credit hours).

### **Helping Outstanding Pupils Educationally (HOPE) Scholarship**

Georgia high school students who graduate with a "B" average or better and attend an eligible private Georgia college full-time may receive up to \$3,000 per school year for full-time (12 hours) enrollment, or \$1,500 for part time (6-11 hours) enrollment. This scholarship is renewable based upon a review of the student's academic record at predetermined intervals. Should a student fall below the 3.0 cumulative GPA at the end of each review period he/she may continue to attend college; however, they will not be eligible for the HOPE Scholarship (the student will continue to receive the GTEG). A student who loses his/her scholarship will be given opportunities to have it renewed if he/she has not passed the last GPA checkpoint at 90 attempted hours. All students attending Thomas University who receive the HOPE Scholarship must apply for the Federal Pell Grant or, if applicable, submit an "Alternate Application" form. HOPE scholarships may be applied only to tuition and mandatory fees.

## **FEDERAL LOANS**

### **Federal Stafford Loan**

The Federal Stafford Loan is a low interest loan, made available to students by a lender such as a bank, credit union, savings and loan, or the Georgia Student Finance Commission.

The Federal Government pays the interest on the subsidized loan for as long as she/he is enrolled at least half-time. Loan eligibility is based on established financial need and state/lender restrictions. Loan repayments for most loans begin six months after the student leaves school or drops below half-time student status. The loan request must be completed before the Stafford Loan can be processed. If the student falls below half-time enrollment, the grace period begins. It is the student's responsibility to notify the Georgia Student Finance Commission when he/she leaves school. The amount of the monthly payment will be determined by the lender and is based upon the cumulative loan amount and Federal regulations.

### **Federal Parent Loan for Undergraduate Students (PLUS)**

PLUS loans provide additional funds for educational expenses for parents of dependent undergraduate students. Application is made through a lender such as a bank, credit union, or savings and loan. Loan eligibility is based on the Cost of Attendance minus any other aid the student may receive.

The Federal PLUS repayment begins sixty days after the funds are disbursed. The lender may offer deferred principal and interest payments or interest only payments while the student is

enrolled at least half-time. Check with the lender for options and eligibility. Federal Pell Grant and Federal Stafford Loan eligibility must be determined before Federal PLUS applications can be certified.

### **Important Information for Federal Family Educational Loan Program Participants**

PLEASE READ CAREFULLY: First time borrowers must receive loan counseling prior to receiving their first disbursement on any Federal Loan at Thomas University. Stafford entrance counseling can be completed online at <http://mapping-your-future.org>.

A first-time borrower cannot receive the first disbursement of a Federal Stafford Loan until 30 days after the first day of class. A first time borrower is a student who attends a college or university for the first time.

Students who receive Federal Loans are required by law to complete the loan exit interview (<http://mapping-your-future.org>) upon leaving Thomas University (graduation, transferring, or dropping out).

**Contact the Financial Aid office with any questions regarding scholarships, grants, and/or loans. 229.226.1621 x158**

## **SCHOLASTIC REQUIREMENTS**

Thomas University Medical laboratory science students must attain a minimum grade of “C” (2.0). A student receiving a grade of “D” (1.0) or lower in a course may be allowed to retake that course the next time it is offered. Most Medical laboratory science courses are offered once a year. Therefore, a grade of “D” would delay graduation by one year provided a “C” or better is achieved the second time. It is not possible to graduate with a grade of “D” or lower in any course applied toward the Medical laboratory science program. **If a student earns a grade less than a “C” in two courses in the MLS program, he/she will not be allowed to continue in the program.** The student may formally request readmission, but will only be granted readmission if there is proof that the reason for poor performance has been rectified.

The current grading scale at Thomas University:

- A = 90 – 100                      Outstanding
- B = 80 – 89                        Above average work
- C = 70 – 79                        Average work
- D = 60 – 69                        Marginal performance

- F = Below 60                      Failure to meet minimum requirements

See the College Catalog for explanation of grades of WF, W, V, K, I, and E.

Final course grades are letter grades. The final grades are available online through the TU Hawmlink function on the school web page. Grades are not provided via the telephone or e-mail.

## TESTING POLICY

Each MLS numbered course will have a proctored mid-term and final exam. These tests will be proctored by the lab manager or his/her designee at the facility where the student works, or by a faculty member on campus. Tests are available for students only during the dates posted on the syllabus. **There are no early-takers allowed nor any make-up opportunities offered.** Students must achieve a score of 70 or above on each final exam in the MLS program to pass the course. Each MLS course has timed quizzes. There are substantial penalties for exceeding the time limit on these quizzes.

In the Senior Seminar (MLS 460) course, the student must complete the program exit exam. The student must pass the exit exam with a minimum score of 70 to complete the course and graduate.

## CONDUCT / PROFESSIONAL IMAGE

The personal conduct and appearance of the MLS student are of primary importance because of the impression they make on patients, other health personnel, and the community in general. High standards of conduct and appearance are expected of a health care professional. Patients and the public expect competence, integrity, and moderation from health care professionals. Anything less than the highest order of professional conduct can only result in the loss of the patient's confidence in the student, the University, and the profession. Because, as an MLS student, you have chosen to enter a health profession, it is necessary to take all possible measures to ensure the cooperation and respect of patients and the public by maintaining high standards of conduct and appearance.

Professional development will be a major component of the MLS curriculum. **Students who earn a 2.0 or less on the Professional Evaluation will be withdrawn from the program.**

## ATTIRE

MLS students will maintain a neat, groomed, and professional appearance at all times. Proper universal precautions will be taken when body fluids or potentially infectious material is handled, so that the student's patients, coworkers, and the general public's health is protected at all times.

## CLASSROOM DRESSCODE

- Students must wear:
  - Hunter Green scrubs to class meeting sessions
  - Close toed tennis shoes (no "clogs" or "Crocs" are allowed)
  - Lab coats (disposable and are provided)
  - Gloves (provided)

## CLINICAL DRESS CODE

The appropriate attire includes:

1. Students must wear appropriate uniforms to all clinical assignments. Scrub tops and bottoms are required. Thomas University requires HUNTER GREEN scrubs with the embroidered logo.
2. Closed-toe, clean, leather shoes.
3. Fluid-proof lab coat, which meets OSHA specifications when working in the laboratory (provided by the facility).
4. Eye protection must be worn when the potential for splash of infectious materials exists (provided by the facility).
5. Gloves
6. Student ID badge must be worn at ALL TIMES
7. Hair should be clean at all times and must be placed up and pulled off the face and the shoulders. Hair is a source of cross contamination and must not interfere with the delivery of patient care. Ponytails must be controlled and not drop forward when giving

patient care or operating laboratory equipment. Beards and mustaches should not appear in disarray. They should be clean and neatly groomed.

8. Makeup worn in moderation
9. Fingernails harbor microorganisms and must be kept reasonably short. **No false fingernails** allowed in the clinical area.
10. A watch, wedding bands or simple rings, and simple (not dangly) earrings are permitted. No other jewelry or body ornamentation is permitted. This includes piercings! One set of conservative earrings in the lobes are allowed. Additional piercings are NOT allowed.
11. Tattoos must be covered – if you have tattoos on the arms, neck, or other areas that could potentially be visible, you **MUST** wear undergarments (turtleneck, long sleeves etc..) to insure they are not exposed or visibly noted.
12. Good personal hygiene is of the utmost importance when working with other people. Please consider the following:
  - Teeth and breath – brush and floss daily. Use a mouthwash as needed.
  - Perspiration and body odor – daily bathing and use of deodorant is recommended.
  - Perfume/cologne – **do not wear**. This is highly important to asthmatic and other respiratory distress patients.
13. Do not chew gum, use tobacco products, or apply makeup in the clinical setting.
14. Undergarments may not be visible through scrubs by pattern or design at any time.
15. The student must meet any additional regulations of the clinical affiliate that are not covered in this handbook.

## CONDUCT

As a student in this profession, one of the most important responsibilities is in the area of personal conduct. The impression you make on the patients and others reflects not only upon yourself, but also on the department and the university. Unprofessional conduct will not be tolerated, and will result in dismissal from the program. Any student under the influence of

non-prescriptive drugs or alcohol in the classroom or clinical site will be dismissed from the program.

The university offers MLS students the opportunity to apply theory and laboratory testing at an MLS level under direct clinical supervision. In order to obtain a consistently high level of training in clinical laboratory science, with a positive impact on patient care, the following code of conduct should be maintained. Professionalism is graded using the Professional Evaluation Form, which can be found in the form section of the handbook.

## CODE OF CONDUCT

Recognizing that my personal and professional conduct can impact the quality of health care delivery, I will:

- Treat patients, classmates, instructors, and healthcare personnel with respect, care, and thoughtfulness.
- Demonstrate compassion and kindness toward colleagues and patients.
- Maintain honesty, initiative, enthusiasm, and adaptability in action and attitude.
- Safeguard patient information as confidential, and in adherence with state and federal laws and regulations.
- Perform duties in a dependable, accurate, precise, timely, and responsible manner.
- Function as a collaborative team member within the college and clinical laboratory setting.
- Communicate effectively and appropriately.
- Be cognizant of and adhere to channels of authority.
- Demonstrate physical and psychological stability under stress.
- Accept responsibility for my own work and results.
- Display an appropriate level of confidence, while recognizing limitations.
- Maintain appropriate professional appearance and hygiene.
- Strive for increased efficiency and quality by using organizational skills.

- Prudently use laboratory resources.
- Continue to study, apply, and advance medical laboratory knowledge and skills and share such with my colleagues, other members of the healthcare community, and the public.

## WITHDRAWAL / READMISSION / APPEAL POLICIES

### WITHDRAWAL

A “W” will be assigned by the Registrar to any student who formally withdraws from any class after the last day of the drop/add period, and prior to the last day to drop a course without academic penalty.

A “WF” will be assigned by the instructor to any student who formally withdraws from any class or from college while doing unsatisfactory work after the last day to drop. The “WF” will be used in the determination of the grade point average.

Grounds for withdrawal from the program include:

- A grade of “D” or below in two MLS courses
- A grade of “D” or below in ANY clinical rotations
- A grade of “D” in any combination of MLS courses (didactic and clinical)
- A Professional Evaluation Grade of 2.0 or below
- Assignment of “WF” in any course
- Unsafe student health practices

**Note: Students who leave or are withdrawn from the program must initiate and complete an Exit Interview with the MLS Program Director.**

### READMISSION

A student who is withdrawn for any of the reasons mentioned above may request to be considered for readmission by submitting a typed letter to the Program Director; however, readmission is not automatic. Students may be considered for readmission to the program **one time only**, under the following conditions:

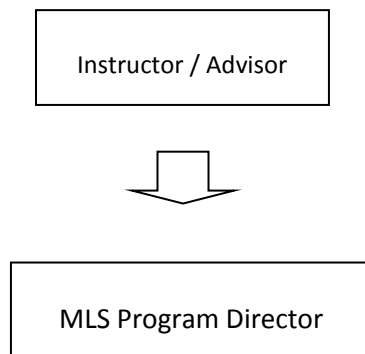


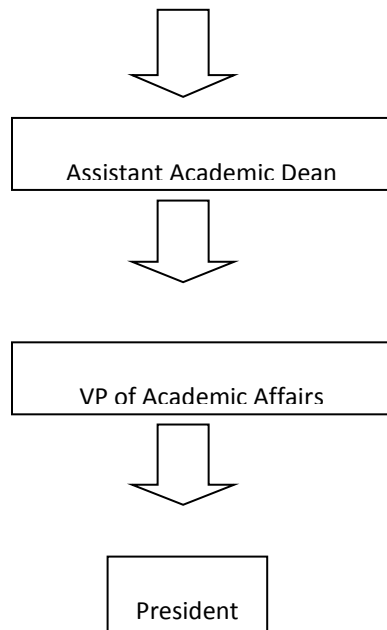
- Space in the class is available.
- Student meets the admission requirements effective for the semester for which they are readmitted.
- Student meets the specific conditions set by a committee comprised of the MLS Program Director, Assistant Professor, and the Assistant Academic Dean. In some cases, students may be required to re-take or audit previously completed courses.
- Students who are withdrawn due to poor academic performance must provide sufficient proof that reasons for poor performance have been rectified.
- Students who withdraw or are withdrawn because of unacceptable professional behavior issues must provide documentation that corrective actions have been completed.
- If 2 semesters or more have lapsed since the student was withdrawn from the program, the student must pass a comprehensive exam in the subjects already completed to measure whether the student has retained the knowledge gained from that course. A laboratory practical may also be required. The student must earn a minimum score of 70 on the exams.

Note: If more than three years have elapsed since withdrawal from the program, the student must reapply for admission as a new student and repeat all professional course work. The student must complete required Medical laboratory science (MLS) courses within three years of the admission date with a minimum grade of “C” .

## APPEAL POLICIES

Any matter of appeal should follow the line of communication as follows:





Academic or unprofessional conduct appeal procedures are as follows:

1. Discuss the grievance with the involved instructor immediately.
2. If the matter is not resolved, an appointment should be made with the MLS Program Director.
3. If the matter is still not resolved, the student should contact the Assistant Academic Dean (Susan Ford) in writing within 10 days after the appointment with the MLS Program Director.
4. If the matter is still not resolved, the student should contact the Vice President of Academic Affairs (Ann Landis) in writing within 10 days after the appointment with the Assistant Dean.
5. If these procedures do not resolve the matter, the student may request of the VPAA a hearing before the President within 10 days. All involved parties shall attend this hearing. After hearing from all involved parties, the President will render a decision, which shall be final and binding on all parties.

## SAFETY GUIDELINES

### STANDARD PRECAUTIONS

With the implementation of the Occupational Safety and Health Administration's (OSHA) Universal Blood and Body Fluid Precautions and Blood-Borne Pathogens standards, the risk of transmission of infection of blood-borne illnesses has been minimized. All clinical affiliates are in strict compliance with OSHA's Universal Precautions guidelines. Since medical history and examination cannot reliably identify all patients infected with HIV, Hepatitis B or other blood-borne pathogens, Standard Precautions should be consistently used for ALL patients.

Standard Precautions must be used when working with the following blood and body fluids:

Blood	Cerebrospinal fluid
Serum/Plasma	Synovial Fluid
Semen	Pleural fluid
Vaginal secretions	Peritoneal fluid
Amniotic fluid	Pericardial fluid
Any body fluid containing visible blood	Pus and purulent discharge

### HAZARDOUS SUBSTANCES

Students should be aware that biological substances that may be potentially hazardous will be handled routinely in the course of clinical laboratory work. All reasonable safety precautions will be taken to ensure the safety of students. The students will be instructed on the University's Exposure Control Plan and each affiliate will instruct the students as to their specific Safety and Exposure Control Plan. The ultimate responsibility for following such procedures and complying with safety guidelines lies with the student. Potentially hazardous materials that will be handled include:

1. Pathogenic microorganisms
2. Human blood, urine, feces, and body fluids which may be possible sources of infectious diseases (i.e., hepatitis B virus, HIV)

3. Radioactive material
4. Corrosive and hazardous chemicals

Medical laboratory science students are expected to work with these materials, as these will constitute the basis for the bulk of work in clinical laboratories. No exceptions (other than a specific medical reason) will be permitted.

## GENERAL SAFETY RULES

The following are safety rules that must be followed during clinical rotations. Please refer to your clinical affiliate safety guidelines for any additional policies.

Personal Protective Equipment (PPE) must be used routinely to prevent skin and mucous membrane exposure.

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### GLOVES

Fluid-proof gloves must be worn when working with laboratory specimens and reagents; when in direct contact with non-intact skin of patients; and when handling items or surfaces soiled with blood or body fluid. Gloves especially must be used when cuts or abrasions are apparent on the hands. Gloves should fit properly so as not to impede dexterity. If allergic to certain gloves, please notify the supervisor of the department.

Non-sterile gloves are used unless sterile gloves are indicated. Gloves should be changed when visibly soiled with blood / body fluids or if damaged. Gloves should not be washed or reused. Contaminated gloves are discarded in the biohazardous containers. Hands should be immediately washed after gloves are removed.

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### LAB COATS

Fluid-proof, knee-length, long-sleeved lab coats must be worn while performing laboratory procedures. Clinical affiliates provide.

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### FACE PROTECTION

Students must wear face protection (mask, goggles, face shield, or work behind splash shields) when handling biological specimens or hazardous chemicals, including human blood and manufactured reagents made from human blood.

1. Hand and other skin surfaces should be washed immediately and thoroughly (including under fingernails) if contaminated with blood and other body fluids. Hands must be washed after removing gloves, contact with blood or body fluids, and/or contact with equipment and work surfaces. Always wash hands before leaving any laboratory and before eating, drinking, or smoking.

2. Clean-Up and Disposal Procedures

A 1:10 dilution of household bleach is always available for cleaning spills and work areas. Clean up with 10% bleach is an effective disinfectant for HIV and other viruses. If a spill occurs, wear gloves to clean up. Wipe most of the spill with absorbent paper towels – discard in bio hazardous waste container. Apply a generous amount of 10% bleach to the spill area, wipe with paper towel – discard in bio hazardous container. When all laboratory work is completed for the day, clean the entire work area with 10% bleach – discard in bio hazardous container. Bio hazardous bags and containers are orange or red and are marked with the universal biohazard symbol label. Bio hazardous bags are placed in puncture-resistant containers with lids. Any contaminated sharp object must be discarded in red bio hazardous puncture-resistant containers.

- Spill kits are available for large bio hazardous spills.
- Report any accident / spill to the instructor immediately.
- Microbiology plates for disposal are to be placed in the large bio hazardous containers.
- All sharp objects (needles, glass slides, glass test tubes, etc...) are to be placed in the red sharp containers. No sharp objects are to be placed in biohazard bags.
- All contaminated non-sharp waste (bloody gauze, contaminated paper towels, gloves etc...) should be placed in the biohazard bags.
- All non-contaminated waste (syringe wrappers, note paper etc...) should be placed in the regular trash. Do not place in the biohazard bags or containers.

3. No eating, drinking, smoking, chewing gum, or applying makeup in the laboratory.
4. No pipetting by mouth.
5. Never recap, bend, or deliberately break or remove needles from syringes.
6. Use universal precautions when handling all blood, body fluids, and reagents.
7. Aerosol Precautions

Care should be taken when uncapping a specimen tube to avoid aerosol and exposure to mucous membranes of mouth, nose, and eyes. When uncapping specimens, place a piece of gauze over rubber stopper when removing. Always cap specimens when centrifuging. Balance the centrifuge carefully and close the centrifuge lid properly.

#### 8. Skin Lacerations

Precautions should be taken to avoid injuries with sharp objects (broken slides, needles, tubes etc...). Should any such injury occur, notify your instructor IMMEDIATELY.

Appropriate first aid should be administered and the facility needs to complete the Student Hazardous Accident Incident Report (located in the form section of the handbook) and notify the clinical coordinator.

#### 9. No visitors in the laboratory

10. Long hair must be pinned up or pulled away from face and neck. Refer to Clinical Dress Code.

11. Closed-toe, clean, leather shoes must be worn.

12. Avoid wearing chains, bracelets, excessive amounts of rings, or other loose hanging jewelry. Refer to Clinical Dress Code.

13. Students are responsible, after proper instruction, for locating and interpreting MSDS sheets.

14. Follow the manufacturer's and the hospital's instructions when operating any laboratory equipment. All equipment must be handled with care and properly cleaned after each use. Report any broken, frayed, or exposed electrical cords to the instructor immediately. Report any broken glassware or damaged equipment to the instructor immediately.

## PROFESSIONAL ORGANIZATIONS

The Medical Laboratory Science Program at Thomas University provides educational opportunities to individuals that will enable them to obtain the knowledge, skills, abilities, and attitudes necessary to succeed as Medical laboratory scientists. The program encourages student membership with professional organizations such as The American Society for Clinical Pathology (ASCP) and The American Society for Clinical Laboratory Science (ASCLS). These organizations provide dynamic leadership and vigorously promote all aspects of clinical laboratory science practice, education and management to ensure lifelong learning and ensure excellent, accessible cost-effective laboratory services for the

consumers of health care. Applications for membership will be provided to the MLS students upon admission to the program.

## POLICY REGARDING SERVICE WORK

Students are encouraged to develop confidence and independent work skills in every phase of their training. With qualified supervision and guidance from the clinical instructor employed by the clinical affiliate, students who have satisfied competency requirements for various test procedures can perform actual patient work; however, ALL student results must be verified before leaving the lab area by the clinical instructor.

The affiliated laboratory may not, under any circumstances, use the student to perform work (service work) in lieu of a regular employee. This would violate NAACLS accreditation standards for the University's MLS Program. Service work by students in clinical settings outside of regular academic hours must be noncompulsory, paid, supervised on site, and subject to employee regulations.

## GRADUATION

Thomas University confers degrees annually in the spring, upon the recommendation of the faculty, to students who have successfully completed all course requirements. All students are required to participate in graduation ceremonies. Exemptions are permitted by the VPAA only under exceptional circumstances. All students must have a minimum GPA of 2.0 in order to be eligible for recommendation for graduation. At least 25% of all hours earned toward any degree must have been earned at Thomas University.

Students who are awarded a bachelor's degree may earn the distinction of graduating *summa cum laude* (4.0 CGPA), *magna cum laude* (3.75-3.99 CGPA), or *cum laude* (3.5-3.74 CGPA). GPAs for graduation honors are calculated using all hours attempted at all institutions attended.

## GRADUATION PROCEDURE:

Students who expect to graduate must...

1. Complete the Intent to Graduate application and submit it to the Registrar by the appropriate date: The deadlines for turning in this form to the Registrar's Office are October 1 (spring semester graduation), December 1 (summer) or March 1 (fall semester). Students who graduate in the fall are eligible to participate in the commencement ceremony the following spring.
2. Complete an exiting student questionnaire;
3. Complete the Medical Laboratory Science Graduate Exit Survey (online)
4. Clear all accounts;
5. Pay graduation fees.

## CLINICAL EXPERIENCE

### CLINICAL AFFILIATES

The MLS Program Director will secure clinical sites for all candidates that are eligible for clinical internship. Students WILL be dismissed from the program if they are found to be acting on behalf of Thomas University to secure their own personal clinical site. Clinical affiliation agreements are formal contracts that are entered into on behalf of Thomas University and the institution. These contracts can be denied by either party for a number of reasons, and will be negotiated by the MLS Program Director ONLY. MLS students should be aware that on occasion, they may be put on a wait-list for the next available slot.

Travel to and from a clinical site and the expenses involved are the sole responsibility of the student.

### CLINICAL COURSES AND SCHEDULING

The MLS Program at Thomas University is a NAACLS accredited program that requires a set minimum hours of training on ALL disciplines that comprise our discipline. Students will be placed in a clinical site upon completion of the major didactic coursework. No internship will be allowed until all theory/lab portions are passed with a 70% or higher for the following courses:

- MLS 385 Parasitology/Mycology/Virology
- MLS 412 Urinalysis
- MLS 414 Serology/Immunology/Molecular Diagnostics
- MLS 321/421 Clinical Microbiology I & II
- MLS 331/431 Hematology and Coagulation I & II
- MLS 341/441 Immunohematology I & II
- MLS 351/451 Clinical Chemistry I & II

The internship portion of these disciplines requires the following:

- MLS 400 Clinical practicum I
  - 120 hours in Urinalysis & Body Fluids
  - 80 hours of Immunology / Molecular Diagnostics
  - 40 hours of Phlebotomy
- MLS 401 Clinical practicum II
  - 200 hours Microbiology
  - 200 hours Hematology
- MLS 402 Clinical practicum III
  - 200 hours Clinical Chemistry



- 200 hours Immunohematology

#### IMPORTANT NOTES REGARDING SCHEDULING:

- A schedule must be worked out between the Program Director and the clinical instructor. Students are expected to attend all designated sessions scheduled. A 40 hour work week is expected.
- A time sheet is provided to record time spent at the clinical site. If the student cannot attend the scheduled times, the clinical instructor and program director must be informed of the absence. It is the responsibility of the student to contact the appropriate individual(s) at the university and hospital.
  - Students must contact the clinical instructor AND Program Director at LEAST 30 minutes prior to the schedule of a shift assignment.
- **Any student that fails to be present for the schedule that was agreed upon, and is dismissed from the clinical site, will be immediately dismissed from the program.**
- **Students are NOT allowed to “re-negotiate” the schedule AT ANY TIME.**

#### STUDENT RESPONSIBILITIES WHILE IN CLINICAL ROTATION

1. Students will keep a time sheet, noting the time of day clocked in and clocked out for each rotation. Students are responsible for getting the clinical supervisor’s initials on the time sheets and turning in to the Program Director at the end of each rotation.
2. If it is necessary for the student to be absent or tardy during the scheduled rotation, the student must notify the clinical affiliate supervisor and the MLS Program Director. Make-up time will be scheduled as soon as possible.
3. Students are responsible for turning in all assignments as specified in the course syllabus and competency list by the due date, which is usually the last day of the rotation. **Failure to do so will result in a 10% grade reduction for the course.**
4. Students will create a clinical portfolio while completing the rotations. The portfolio should be posted to the appropriate folder on the Blackboard course site.
5. Students will complete and turn in an evaluation of each clinical rotation to the Program Director in the last semester of attendance. See a copy of these forms in the form section of the handbook.

## PROFESSIONAL BEHAVIOR

(See Conduct / Professional Image section of the MLS Handbook)

Students are to maintain an agreeable and professional attitude at all times. If a student's behavior is unprofessional and disruptive to the flow of work in the clinical laboratory, the clinical supervisor will first counsel the student. If behavior continues following reasonable warning, the supervisor may ask that the student leave for the day, and must immediately notify the MLS Program Director. If a student is dismissed from a clinical site due to unprofessional behavior, or excessive absences/tardiness, the MLS Program Director will withdraw the student from the MLS Program and awarded an "F" for the clinical rotation.

*Clinical forms will be provided to the student through the course website. However, you may use the ones provided later in this handbook should you complete a rotation before being enrolled in the course.*



**MEDICAL LABORATORY SCIENCE PROGRAM  
POLICIES AND PROCEDURES PROGRAM HANDBOOK  
2012 - 2015**

I, \_\_\_\_\_, certify that I have a copy of the MLS/MLS Policies and Procedures Program Handbook 2012 - 2015. I have reviewed the information carefully and understand that I am accountable for all of the information in the MLS Program Handbook. I further understand that I am responsible for clarifying with a MLS faculty member any areas that I do not understand.

I have been given the opportunity to ask any questions that I have about the MLS/MLS Program Handbook.

I understand the policies for progression in and completion of the MLS Program.

I have read, understand, and agree to perform the Essential Functions as described in the handbook. If needed, I have made arrangements through Student Support Services for necessary accommodations in order to perform the Essential Functions.

I have been advised that the information in the MLS Program Handbook is valid for the period beginning January 2013 and ending December 2015.

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

**THOMAS UNIVERSITY MLS HAZARDOUS INCIDENT REPORT FORM**

**STUDENT HAZARDOUS/ACCIDENT INCIDENT REPORT**

**Directions:** Use this form to record and **IMMEDIATELY** notify Thomas University's MLS Program Director of any special occurrence or hazardous event which might adversely affect the student in any way. Please notify the University by phone 229.226.1621 x1088.

Student's Name \_\_\_\_\_ Date/Time of Incident \_\_\_\_\_

Clinical Affiliate \_\_\_\_\_

Supv. Name \_\_\_\_\_

Description of Incident:

Type of Exposure (biohazardous, needlestick, etc...)

First Aid Administered: \_\_\_\_\_ Yes \_\_\_\_\_ No

Follow-up Treatment, Testing, Counseling if applicable (describe):

Additional Comments (if desired):

Student Comments (if desired):

Person notified at Thomas University \_\_\_\_\_ Date \_\_\_\_\_

Clinical Affiliate Supervisor Signature \_\_\_\_\_ Date \_\_\_\_\_

Student's Signature \_\_\_\_\_ Date \_\_\_\_\_



**MEDICAL LABORATORY SCIENCE PROGRAM HEPATITIS B VACCINE DEFERRAL STATEMENT**

Student Name: \_\_\_\_\_

Student ID# : \_\_\_\_\_

I understand that due to my occupational training exposure to blood or other potentially infectious body materials, I may be at risk of acquiring hepatitis B virus (HBV) infection.

**I decline hepatitis B vaccination at this time.** I understand that by declining this vaccine, I continue to be at risk of acquiring hepatitis B, a serious disease.

Student Signature \_\_\_\_\_

Date \_\_\_\_\_

MLS Program Director Signature \_\_\_\_\_

Date \_\_\_\_\_

**THOMAS UNIVERSITY LABORATORY TIME SHEET**

**Student Name:** \_\_\_\_\_ **Dept:** \_\_\_\_\_

Date	Log in	Log Out	Total Hours	Supervisor Signature
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				
		<b>TOTAL</b>		

Date	Log in	Log Out	Total Hours	Supervisor Signature
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				
		<b>TOTAL</b>		

Date	Log in	Log Out	Total Hours	Supervisor Signature
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				
		<b>TOTAL</b>		

**THOMAS UNIVERSITY MEDICAL LABORATORY SCIENCE PROGRAM DRUG SCREEN/CRIMINAL BACKGROUND AUTHORIZATION**

In connection with my admission and enrollment in Thomas University's MLS Program, and my participation in the Program's clinical training opportunities, I, for myself, my successors, agents and estate, hereby:

- (1) authorize that I will submit to the University's drug screening and background check policy
- (2) consent to the providing of any and all drug screening and background check results to the University
- (3) acknowledge that decisions regarding my application to and continued enrollment in the Program will be made based upon the results of these tests, and
- (4) release, discharge, absolve, indemnify and hold harmless the University, its officers, employees, and agents from any and all claims, causes of action, liabilities, demands, expenses, damages, or costs (including attorney's fees) present or future, whether known or unknown, anticipated or unanticipated, which I may assert against any of them in connection with my drug screening background checks as required for enrollment in the Program.

I understand that this release shall be forever binding and no rescission, modification or release there from may be made without the express written consent of Thomas University. I have received all the information necessary to make an informed decision regarding this release. I fully understand the terms and consequences of agreeing to this release, and acknowledge that I voluntarily and of my own free will am waiving my right to assert any action against the University and all current and former officers, employees, and agents of the University performing services on behalf of the University, for any and all claims, causes of action, liabilities, expenses or damages which I may assert against any of them as a result of my undergoing drug screening and background checks as required for enrollment in the University's MLS Program.

**LIMITED RELEASE**

In connection with my admission and enrollment in Thomas University's MLS Program, and my participation in the Program's clinical training opportunities, I hereby authorize the University and its agents to release any and all information relevant to my criminal record and/or drug screen results to any authorized clinical site representative it deems appropriate in order to determine my suitability to be enrolled in the University's MLS Program and/or to be assigned to a clinical site selected by the University.

A photocopy of this release will be sufficient to authorize the release of the information.

\_\_\_\_\_ Date: \_\_\_\_\_

(Signature of student)

\_\_\_\_\_

(Print name of applicant or student)

## DRUG SCREENING FOR STUDENTS ATTENDING A CLINICAL ROTATION SETTING

### POLICY

Drug screening(s) are required of all students in the MLS program. As applicable, students/accepted applicants who do not pass the drug screening may be unable to complete degree requirements or may be denied admission to or suspended or dismissed from the degree program.

### RATIONALE

1. Health care providers are entrusted with the health, safety, and welfare of patients; have access to confidential and sensitive information; and operate in settings that require the exercise of good judgment and ethical behavior. Thus, an assessment of a student's or accepted applicant's suitability to function in a clinical setting is imperative to promote the highest level of integrity in health care services.
2. Clinical facilities are increasingly required by the accreditation agency Joint Commission on Accreditation of Healthcare Organizations (JCAHO), to provide a drug screening for security purposes on individuals who supervise care, render treatment, and provide services within the facility.
3. Clinical rotations are an essential element in certain degree programs' curricula. Students who cannot participate in clinical rotations due to a positive drug screening are unable to fulfill the requirements of a degree program. Therefore, these issues must be resolved prior to a commitment of resources by the University or the student or accepted applicant.
4. Additional rationale include (a) meeting the contractual obligations contained in affiliation agreements between TU and the various health care facilities; (b) performing due diligence and competency assessment of all individuals who may have contact with patients and patient specimens (c) ensuring uniform compliance with JCAHO standards and agency regulations pertaining to human resource management; (d) meeting the public demands of greater diligence in light of the national reports on deaths resulting from medical malpractice and medical errors.

### TIMING AND PROCEDURES OF THE DRUG SCREENING

Accepted applicants in designated programs must complete the following prior to the start of internship.

- Submit to a chain of custody drug screen
- Successfully pass the drug screen with sufficient time for the vendor to provide clearance documentation to the respective college/program designee.

Note: Should the vendor report that the screening specimen was diluted or tampered with, thereby precluding an accurate drug screen test, the student/accepted applicant will be not be accepted into the internship and may be dismissed from the program.

### PERIOD OF VALIDITY



Drug screening will generally be honored by TU for a period of one year but may be required on a more frequent basis depending on the requirements of a clinical rotation site. Students who have a break in enrollment may be required to retest before they can re-enroll in any courses. A break in enrollment is defined as non-attendance of one full semester (Fall, Spring, Summer) or more.

## DRUG SCREENING PANELS

The drug screening shall include testing for at least the following drug panels:

1. Amphetamines
2. Barbiturates
3. Benzodiazepines
4. Cocaine Metabolite
5. Opiates
6. Phencyclidine (PCP)
7. Marijuana (THC) Metabolite
8. Methadone
9. Methaqualone
10. Propoxyphene
11. Meperidine
12. Oxycotin

## REPORTING OF FINDINGS AND ACCESS TO DRUG SCREENING REPORT

An “offense” under this policy is any instance in which a drug screening report shows a positive test for one or more of the drugs listed above in the Drug Screening Panels section.

Accepted internship candidates with a positive drug screen will not be allowed to begin classes unless, in case of a questionable/indeterminate result, the vendor provides clearance documentation to the college or program designee. Students should be aware that failure to pass drug screening, as determined by each facility, will prevent the student from participating in that clinical experience and will prevent the student’s completion of the degree program requirements or prevent the student from completing the degree program.

## CURRENT STUDENTS IN CLINICAL FACILITY

Any clinical affiliate reserves the right to demand a random drug screen of any students using their facility for clinical rotations. Failure to submit to a drug screen, or a positive result will be grounds for dismissal from the

clinical facility. Should a student be dismissed from a clinical site for failing a drug screen, it is not the responsibility of the MLS program or its faculty to provide another clinical site.

## FALSIFICATION OF INFORMATION

Falsification of information will result in immediate removal from the accepted applicant list or dismissal from the degree program.

## CONFIDENTIALITY OF RECORDS

Drug screening reports and all records pertaining to the results are considered confidential with restricted access. The results and records are subject to the Family Educational Rights and Privacy Act [FERPA] regulations. For additional information on FERPA, please see <http://www.ed.gov/policy/gen/guid/fpc/ferpa/index.html>.

Records will be shared with the assigned clinical affiliate at their request.

## THOMAS UNIVERSITY MLS PROGRAM CRIMINAL BACKGROUND CHECK POLICY AND PROCEDURE

### RATIONALE

Medical Laboratory Science students are entrusted with the health, safety and welfare of patients, have access to confidential information, and operate in settings that require the exercise of good judgment and ethical behavior. Thus, an assessment of a student or applicant's suitability to function in such a setting is imperative to promote the highest level of integrity in health care services.

Clinical facilities are required in standards by accreditation agencies, such as Joint Commission of Accreditation of Healthcare Organizations (JCAHO), to mean they are required to perform background checks for security purposes on individuals who provide services within the facility and especially those who supervise care and render treatment to vulnerable populations. To facilitate this requirement, and maintain opportunities for students to have entrance into clinical facilities, health professional education institutions have agreed to have these background checks required for students.

Clinical rotations and early experiential rotations are essential elements in MLS curricula. Students who cannot participate in clinical rotations due to criminal or other adverse activities that are revealed in a background check will be unable to fulfill the requirements of the program. Additionally, many healthcare licensing agencies require an individual to pass a criminal background check as a condition of licensure or employment. Therefore, it is in everyone's interest to resolve these issues prior to a commitment of resources by the university, the student, or applicant.

The MLS Program is obligated to meet the contractual requirements contained in affiliation agreements between the university and the various healthcare facilities.

### POLICY

All applicants accepted into the internship/practicum portion of the MLS Program must submit to and satisfactorily complete a criminal background check (CBC) as a condition to matriculate into the professional program. Students who refuse to submit to background checks may be dismissed from the program, or diverted to the Biomedical Science program if interested in completing the degree option.

Students enrolled in the MLS Program shall self-disclose to the Program Director and Clinical affiliate criminal history record information NO later than five (5) business days following the charge of any crime. Failure to disclose information which is subsequently found on a background check will result in dismissal from the University. Criminal activity that occurs while a student is in attendance at the University may result in disciplinary action, including dismissal, and will be addressed according to the Academic and Professional Standards of the University and Clinical Affiliate.

Background check reports will be kept in the student's confidential "personal" file located in the MLS Program, not in the academic file kept in the Registrar's office. Access to these reports is not bound by the Family Educational Rights and Privacy Act (FERPA) requirements. The information contained in this file will be shared with the student's choice of affiliated clinical agencies for approval before entering that clinical facility. It is the right of the clinical affiliate to determine whether the student is acceptable for training in that facility.

A student who has a break in their enrollment is required to complete a new background check. A break in enrollment is defined as non-enrollment of at least one semester. An officially approved leave of absence is also considered a break in enrollment.

## CRIMINAL BACKGROUND CHECKS

The MLS Program will designate company to conduct the CBCs. Results from a company or institution other than those designated will not be accepted.

Additionally, each student or accepted applicant must also complete the required releases so that the MLS Program will receive a copy of results of the CBC review directly from the approved vendor. Students and accepted applicants are charged for the fee through the internship fees that are assigned in the tuition package.

If an accepted applicant's or student's report contains adverse findings, the Human Resource manager at the clinical facility will review the file and may request the applicant or student to submit additional information related to the finding (such as court documents and police records) at the student's or applicant's expense. The HR manager will review all information available to him/her and determine whether the student is ineligible for admission or whether the student should be excluded from participation in clinical rotations in their facility. An inability to complete the clinical rotation portion of the program will result in dismissal from the program.

The criminal background check will include a review of the student's or accepted applicant's criminal history for at least the seven (7) years prior to the date of acceptance. The CBC will include a check of the cities and counties of all known residences, date of birth, all names and alias ever used, verification of prior employment, verification of residence, etc. The scope of the CBC may include any or all of the following items:

- Social Security number validation
- Felony convictions
- State and national criminal history search, including;
  - Misdemeanor or felony convictions, deferred adjudications, or judgments involving crimes against persons (physical or sexual abuse), Misdemeanor or felony convictions,

deferred adjudications, or judgments related to moral turpitude (prostitution, public lewdness/exposure, etc.)

- Felony convictions, deferred adjudications or judgments for the sale, possession, distribution, or transfer of narcotics or controlled substances, and involving crimes against persons (physical or sexual abuse)
- Pending criminal charges involving felonies, Class A, Class B, or Class C misdemeanors, or
- Expunged criminal records
- Violent Sex Offender and Predator Registry search
- Office of the Inspector General (OIG) List of Excluded Individuals/Entities
- General Services Administration (GSA) List of Parties Excluded from Federal Programs
- Employee Misconduct Registry
- U.S. Treasury, Office of Foreign Assets Control (OFAC), and List of Specially Designated Nationals (SDN) search
- Nationwide Healthcare Fraud and Abuse scan
- Interpol or country of origin checks for international students
- Applicable State Exclusion list

Students and accepted applicants have the right to review the information reported by the designated vendor for accuracy and completeness and to request that the designated vendor verify that the background information provided is correct. Prior to making a final determination that may adversely affect the applicant or student, the MLS Program will inform the student or applicant of their rights, how to contact the designated vendor to challenge the accuracy of the report, and that the designated vendor was not involved in any decisions made by the MLS Program.

## HEALTH HISTORY QUESTIONNAIRE

All questions contained in this questionnaire are strictly confidential and will become part of your medical record.

<b>Name</b> <i>(Last, First, M.I.):</i>	M <input type="checkbox"/> F <input type="checkbox"/>	<b>DOB:</b>
<b>Previous or referring doctor:</b>	<b>Date of last physical exam:</b>	

### HEALTH HISTORY

<b>Childhood illness:</b>	<input type="checkbox"/> Measles <input type="checkbox"/> Mumps <input type="checkbox"/> Rubella <input type="checkbox"/> Chickenpox <input type="checkbox"/> Rheumatic Fever <input type="checkbox"/> Polio	
<b>Immunizations and dates:</b>	<input type="checkbox"/> Tetanus	<input type="checkbox"/> Pneumonia
	<input type="checkbox"/> Hepatitis	<input type="checkbox"/> Chickenpox
	<input type="checkbox"/> Influenza	<input type="checkbox"/> MMR <i>Measles, Mumps, Rubella</i>
<b>Blood Pressure</b>		<b>Height / Weight</b>
<b>List any medical problems that other doctors have diagnosed</b>		

<b>List your prescribed drugs and over-the-counter drugs, such as vitamins and inhalers</b>		
Name the Drug	Strength	Frequency Taken
<b>Allergies to medications</b>		
Name the Drug	Reaction You Had	

### MENTAL HEALTH

Is stress a major problem for you?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
------------------------------------	------------------------------	-----------------------------

Do you feel depressed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you panic when stressed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you have problems with eating or your appetite?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you cry frequently?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have you ever attempted suicide?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have you ever seriously thought about hurting yourself?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do you have trouble sleeping?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Have you ever been to a counselor?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

**OTHER PROBLEMS**

Check if you have, or have had, any symptoms in the following areas to a significant degree and briefly explain.

<input type="checkbox"/> Skin	<input type="checkbox"/> Chest/Heart	<input type="checkbox"/> Recent changes in:
<input type="checkbox"/> Head/Neck	<input type="checkbox"/> Back	<input type="checkbox"/> Weight
<input type="checkbox"/> Ears	<input type="checkbox"/> Intestinal	<input type="checkbox"/> Energy level
<input type="checkbox"/> Nose	<input type="checkbox"/> Bladder	<input type="checkbox"/> Ability to sleep
<input type="checkbox"/> Throat	<input type="checkbox"/> Bowel	<input type="checkbox"/> Other pain/discomfort:
<input type="checkbox"/> Lungs	<input type="checkbox"/> Circulation	

\_\_\_\_\_  
**Print Name of Examining Physician or Nurse Practitioner**

\_\_\_\_\_  
**Address**

\_\_\_\_\_  
**Signature of Physician or Nurse Practitioner**

**Date** \_\_\_\_\_

**I authorize release of all information to Thomas University and its clinical affiliates.**

\_\_\_\_\_  
**Signature of Student**

\_\_\_\_\_  
**Date**

**\*\*If you have had a physical within the last 12 months that provides the required information, a copy of the results will be acceptable. A physician, physician assistant, or nurse practitioner must complete the exam.**

**THOMAS UNIVERSITY MEDICAL LABORATORY SCIENCE PROGRAM CONSENT TO RELEASE MEDICAL RECORDS**

Pursuant to the Family Educational Rights and Privacy Act (FERPA) of 1974, as amended, the University cannot disclose personally identifiable information contained in the student's education records without the student's written consent, except to the extent that FERPA authorizes disclosure without consent. A parent does not have the automatic right to view his/her child's records without the express written consent of the student, unless that parent can provide proof that the student is still a dependent for income tax purposes. See the TU Guidelines and Procedures Governing Student Records for further explanation of the student's privacy rights.

Students may grant any third party (e.g. spouse, parent, and/or sponsor) permission to access his/her education records or any portion thereof by completing this form and returning it to the appropriate records custodian (See the TU Guidelines and Procedures Governing Student Records).

The portion of my records maintained by the MLS Program at Thomas University\* and described below:

To (person(s) to whom disclosure should be made): **clinical agencies where students have clinical assignments**

Description of Records to be Disclosed: **immunization records, drug screen results, criminal background checks, clinical compliance forms**

Purpose of Request: **clinical compliance**

In giving this authorization, I knowingly and willingly waive all privacy and confidentiality rights to which I am entitled under Federal, State or Local law or under University rules, regulations, statutes or policies. I further agree to hold the Board of Trustees of Thomas University, its officers, employees, representatives, agents and assigns free and harmless from any and all lawsuits or causes of action which may arise as a result of this authorization. I further understand that I may revoke this consent at any time upon written notice to the office/unit/department indicated above.

\_\_\_\_\_  
Student's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
University ID Number (UIN)

\*Please note that this consent only permits the disclosure of records maintained in the office/unit/department indicated above. As such, records maintained in other offices will not be disclosed as a result of this authorization.



## MICROBIOLOGY CLINICAL COMPETENCY CHECKLIST

At the completion of the MLS 401 course, the student will have successfully completed the following:

Objective	Minimum Achievement Level	Actual Achievement Level	Clinical Instructor Initials
<b>MICROBIOLOGY</b>			
<b>Specimen Management / Record Keeping</b>			
1. Distribute specimens appropriately.	3		
2. Evaluate specimens for acceptance or rejection.	3		
3. Document specimen rejection according to department guidelines.	3		
4. Report and/or call results according to protocol.	3		
5. Maintain patient records according to protocol.	3		
6. Demonstrate safe techniques in handling and disposal of infectious materials according to lab protocol.	3		
7. Discuss Universal Precautions as applicable to microbiology.	3		
8. Maintain a clean and organized work area.	3		
<b>Quality Control</b>			
1. Perform Daily/Shift QC procedures according to lab standards.	3		
2. Evaluate QC data and identify appropriate corrective action when data is out of range.	3		
3. Evaluates cumulative QC data for abnormalities.	3		
4. Calibrate and perform preventative maintenance on microbiology instrumentation.	3		
5. Discuss how the performance of specific media is evaluated and how often.	3		
6. Select media and reagents for evaluation of sterility and reactivity.	3		
7. Choose appropriate control organism, inoculation techniques, and culture procedure.	3		
8. Correctly interpret and record data	3		
9. If results are unacceptable, determine follow-up and consult with instructor.	3		
10. Discuss accreditation requirements with regard to thermometers, CO2 incubators, and sterilization procedures.	3		

<b>Automated Microbiology Analyzers</b>			
1. Operate and maintain all instruments and equipment according to the established SOP.	3		
2. Discuss the theory of operation of all micro instrumentation. List the instruments below:	3		
<b>Processing / Staining</b>			
1. Select proper media for primary plating of specimens including plated media, broth media, and slides for gram stains.	3		
2. Label all materials according to established protocol.	3		
3. Demonstrate satisfactory plate streaking for isolation and quantitative streaking for urines.	3		
4. Select and initiate appropriate incubation atmosphere and temperature.	3		
5. Demonstrate proper technique in preparing and staining smears for direct microscopic examination according to established protocol. Practice performing Gram stains until proficiency is obtained.	3		
6. Evaluate gram stains, including sputum samples, wounds, genital samples, and positive blood cultures until proficient.	3		
7. Recognize organisms and related cellular elements enumerating and interpreting accurately.	3		
8. Morphologically categorize organisms.	3		
9. Record and report results according to established protocol.	3		
10. Differentiate grossly contaminated specimens from those containing pathogens.	3		
<b>Primary Media Interpretation</b>			
1. Observe growth and analyze considering other test data.	3		
2. Observe and describe colony morphology recording observations.	3		
3. Count colonies according to established protocol.	3		
4. Interpret screening disc inhibition patterns.	3		
5. Prepare smears, stain, and microscopically identify organism morphology.	3		
6. Select appropriate subculture and secondary identification media and procedures.	3		
7. Correlate gram stains of direct smears or enrichment broths with culture results.	3		
8. Evaluate throat cultures and select next course of action.	3		

9. Evaluate urine cultures to decide when susceptibility testing is warranted.	3		
10. Evaluate vaginal cultures to recognize what is normal flora and what is significant.	3		
11. Evaluate stool cultures to recognize what is normal flora and what is significant.	3		
12. Evaluate body fluid cultures for pathogens.	3		
13. Evaluate wound cultures to recognize pathogens and select next course of action.	3		
8. Evaluate respiratory cultures, including sputum culture to recognize normal flora and significant pathogens.	3		
<b>Secondary or Confirmatory Identification</b>			
1. Perform and interpret subculture and secondary procedures as required utilizing appropriate control materials and procedures. These may include the following:	3		
a. Biochemical batteries	3		
b. Re-streak for isolation	3		
c. B-lactamase	3		
d. Coagulase	3		
e. Catalase	3		
f. Oxidase	3		
g. Bacitracin	3		
h. Otochin or bile	3		
2. Select, perform, and interpret any of the following immunological tests and confirmatory procedures: (include appropriate controls)			
a. CAMP (or Streptex)	3		
b. Lancefield grouping	3		
c. Direct Antigen Detection	3		
i. Bacterial Antigen	3		
ii. Strep Group A	3		
iii. Others _____	3		
3. Differentiate pathogens from normal flora or contaminants in the following cultures:			
a. Respiratory	3		
b. Genital	3		
c. Urine	3		
d. Stool	3		
e. Wounds	3		

f. Sterile Body Fluids	3		
4. Correctly interpret, identify, and record results for all secondary media and confirmatory procedures.	3		
5. Prepare reports using established protocol, proper terms, and correct spelling.	3		
<b>Susceptibility Testing</b>			
1. Discuss the general test methods available in susceptibility testing.	3		
2. Select, perform, and interpret any of the following tests or others as protocol specifies including appropriate controls: Discuss the principles and procedures of each.	3		
a. Kirby-Bauer Method	3		
b. MIC (Minimum Inhibitory Concentration)	3		
c. Automated Method	3		
d. Others _____	3		
3. Understand QC procedures needed for susceptibility testing.	3		
4. Discuss resolving discrepancies and reviewing results for accuracy.	3		
<b>Blood Cultures</b>			
1. Discuss the proper procedures for collection and venting of blood cultures, including recommended number of cultures and volume of blood collected.	3		
2. Select proper incubation temperatures, times, and growth requirements.	3		
3. Recognize visual signs of a positive blood culture.	3		
4. Perform and interpret blood culture Gram stains.	3		
5. Discuss those organisms most frequently isolated from blood cultures.	3		
6. Completely work up a positive blood culture, from proper subculturing to biochemical identification, and susceptibility testing.	3		
7. Select and perform procedures for the handling of cultures positive for anaerobes.	3		
8. Differentiate possible contaminants from pathogens isolated from blood cultures.	3		
9. Correlate positive blood cultures with positive cultures from other sites for the same patient.	3		
10. Record and report all results according to established protocol.	3		
11. Discuss the procedure and principle of automated blood culture detection systems.	3		
<b>MYCOLOGY</b>			

1. Discuss safety precautions for handling fungal cultures.	3		
2. Discuss the rationale for the use of selective fungal media.	3		
3. Discuss fungi frequently isolated as contaminants.	3		
4. Process specimen for direct microscopic examination by KOH technique.	3		
5. Select appropriate media and inoculation technique considering source.	3		
6. Select proper incubation temperatures and times.	3		
7. Discard or store specimens according to policy.	3		
8. Select and perform appropriate stain to identify fungal elements on direct smears:	3		
a. India Ink	3		
b. Gram	3		
c. Modified AFB	3		
d. Others _____	3		
9. Microscopically recognize and interpret all elements and characteristic morphology.	3		
10. Correctly interpret findings and accurately record data.	3		
11. Given the unknowns provided, identify organisms accurately recording colony morphology and growth vs. time of incubation.	3		
12. Determine and accurately perform the following secondary identification procedures as needed interpreting and recording all results using correct terms and spelling:	3		
a. Biochemicals	3		
b. Secondary culture media	3		
c. Germ tube	3		
d. Stains	3		
e. Lactophenyl Cotton Blue	3		
f. Gram	3		
g. Modified AFB	3		
<b>MYCOBACTERIA</b>			
1. Discuss safety measures that must be employed in processing acid-fast bacilli (AFB) cultures and explain why they are so important.	3		
2. Prepare direct smears for staining.	3		
3. Select appropriate media. Compare the media, incubation times, incubation temperatures, and growth conditions (light vs. dark) for the growth of the most commonly isolate mycobacteria.	3		
4. Inoculate media using correct incubation temperature and atmosphere.	3		

5. Stain direct and concentrate smears utilizing appropriate technique:	3		
a. Auramine-O	3		
b. Ziehl-Neelson	3		
6. Morphologically identify and enumerate AFB organisms.	3		
7. Prepare initial report based on stained film observations according to established protocol using correct terms and spelling.	3		
8. For presumptively positive specimens, confirm the presence of AFB organisms and prepare the specimen for send-out utilizing correct procedures.	3		
9. Prepare final report using correct protocol, terms and spelling.	3		
10. Store or discard specimens according to protocol.	3		
<b>PARASITOLOGY</b>			
1. Determine acceptability of fecal specimens.	3		
2. Discuss appropriate collection techniques for stool specimens including timing, number of specimens and special procedures.	3		
3. Transfer specimen to appropriate preservation.	3		
4. Prepare slides for direct saline prep and iodine stained examination.	3		
5. Discuss the flotation and formalin-ethyl acetate sedimentation procedures for examining stools.	3		
6. Concentrate by formalin-acetate procedure recovering ova and parasites present.	3		
7. Discuss common methods of staining parasites.	3		
8. Effectively stain for amoeba by trichrome stain technique including correct controls.	3		
9. Using appropriate references, microscopically and macroscopically if applicable, identify ova and/or parasite and diagnostic stage present by:	3		
a. Properly focusing and illuminating specimen	3		
b. Accurately measuring using ocular micrometer.	3		
10. Report results according to established protocol using correct terms and spelling.	3		
11. Discuss methods of examining specimens for <i>Cryptosporidium</i> , including the acid-fast stain and fluorescent stain.	3		
12. Perform and interpret an acid-fast stain for <i>Cryptosporidium</i> .	3		
13. Discuss the methods used to prepare and examine blood smears for parasites.	3		
14. During all microscopic tasks, properly focus, illuminate, clean, and maintain the microscope.	3		

15. Accurately calibrate an ocular micrometer in order to correctly measure an organism with the micrometer.	3		
<b>Interpretation and Acceptance of Results</b>			
1. Understand microbiology “panic values” and know how and when to report them.	3		
2. Discuss which organisms are reportable to the State Health Department.	3		

- There is no minimum or maximum number of tasks that you must perform.
- The clinical instructor will determine the number needed to attain competency.

Students should work together with their respective mentors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor must comply with the laboratory’s acceptable standards. While working in the laboratory, the student must meet laboratory standards for work habit skills in patient confidentiality, communication skills, laboratory safety, universal precautions, waste disposal, and equipment/work area maintenance.

It is requested that the student’s competency checklist and professional evaluation be completed by the clinical instructor in the presence of the student so as to allow verbal feedback to the student regarding the student’s progress and performance.

#### TO THE CLINICAL INSTRUCTOR:

Use the following scale to score the student’s competency for each item.

#### LEVELS OF ACHIEVEMENT – PLEASE USE THE FOLLOWING SCORING CATEGORIES:

1. Student has difficulty grasping important functions and tasks in the laboratory. Consistently performs with errors, demonstrates an unacceptable attitude, or both. Very unsatisfactory; unable to improve.
2. Student functions inconsistently in the laboratory, with constant and detailed instruction required to achieve acceptable performance. Unsatisfactory; needs much improvement.
3. Student demonstrates acceptable performance with supervision. Requires assistance with evaluation of situations and solutions. Satisfactory; meets minimal standards.
4. Student demonstrates good performance, is careful, and demonstrates adequate attention to detail. Requires minimal supervision. Satisfactory; meets expected standards.
5. Student demonstrates superior performance with an above-average level of skill. Rarely requires assistance with evaluation of situations and solutions. Very Satisfactory; exceeds student standards.

N/A Not Applicable – Use this if an item does not apply or if the competency was discussed only – please note if the competency was discussed only; the final evaluation grade will be based upon only the number of RATED items.

## URINALYSIS / IMMUNOLOGY / PHLEBOTOMY

At the completion of the didactic and practicum component of the MLS 400 course, the student will have successfully completed the following:

Objective	Minimum	Actual	Clinical
	Achievement	Achievement	Internship
	Level	Level	Initials
<b>URINALYSIS</b>			
<b>Specimen Management</b>			
1. Distribute specimens appropriately.	3		
2. Evaluate specimens for acceptance or rejection.	3		
3. Document specimen rejection according to department guidelines.	3		
4. Report and/or call results according to protocol.	3		
5. Maintain patient records according to protocol.	3		
6. Demonstrate safe techniques in handling and disposal of infectious materials according to lab protocol.	3		
<b>Quality Control/Quality Assurance/</b>			
<b>Quality Improvement</b>			
1. Perform Daily/Shift QC procedures according to lab standards.	3		
2. Evaluate QC data and identify appropriate corrective action when data is out of range.	3		
3. Evaluates cumulative QC data for abnormalities.	3		
4. Calibrate and perform preventative maintenance on urinalysis instrumentation.	3		
<b>Routine Urinalysis</b>			
1. Perform physical evaluation to include color, transparency, and type of specimen.	3		
2. Follow correct laboratory procedure in performing urine dipstick analysis.	3		
3. Follow correct procedure in performing confirmatory tests for sugars, acetone, protein and bilirubin.	3		
4. Follows correct procedure in performing urine microscopic analysis.	3		
5. Correctly identify common cellular elements found in urine samples.	3		
6. Correctly identify common crystals found in urine samples.	3		
7. Correctly identify common casts found in urine samples.	3		



8. Distinguish common microscopic artifacts from urinary formed elements.	3		
9. Correlate results with disease states.	3		
10. Demonstrate the ability to operate instrumentation used for routine urinalysis testing including trouble-shooting procedures.	3		
<b>SEROLOGY</b>			
<b>Specimen Management</b>			
1. Distribute specimens appropriately.	3		
2. Evaluate specimens for acceptance or rejection.	3		
3. Document specimen rejection according to department guidelines.	3		
4. Report and/or call results according to protocol.	3		
5. Maintain patient records according to protocol.	3		
6. Demonstrate safe techniques in handling and disposal of infectious materials according to lab protocol.	3		
<b>Quality Control/Quality Assurance/</b>			
<b>Quality Improvement</b>			
1. Perform Daily/Shift QC procedures according to lab standards.	3		
2. Evaluate QC data and identify appropriate corrective action when data is out of range.	3		
3. Evaluates cumulative QC data for abnormalities.	3		
4. Calibrate and perform preventative maintenance on serology instrumentation.	3		
<b>Routine Serology</b>			
1. If available, perform tests representative of the following methodologies:	3		
a. EIA/ELISA	3		
b. IFA	3		
c. Nephelometry (Optional)	3		
d. Diffusion (Optional)	3		
e. Agglutination	3		
<b>Molecular Diagnostic Immunology</b>			
<b>Phlebotomy</b>			
1. Name and locate the 3 veins of the arm used for venipuncture.	3		
2. Observe Universal Precautions when performing venipuncture procedures.	3		

3. Identify the information which must be contained on the label of a patient blood sample	3		
4. Observe established protocol for maximum venipuncture attempts by a given phlebotomist	3		
5. Correlate test request with the proper specimen to be collected from the patient.	3		
6. Follow the established protocols for patient identification prior to collection.	3		
7. Identify the approved area of collection of blood from the finger of an adult/child	3		
8. Demonstrate proficiency in collection of blood samples to protect welfare of the patient	3		
9. Demonstrate proficiency in collection of blood samples to protect welfare of healthcare personnel	3		
10. Maintain confidentiality of patient information related to specimen collection.	3		
11. Strictly adhere to all quality assurance measures pertaining to phlebotomy to ensure specimen quality	3		
12. Accurately document all phlebotomy activity according to established protocol.	3		
13. Identify the uses of computer systems for the phlebotomy service of the clinical laboratory	3		
14. Demonstrate proficiency in performance of venipuncture by vacuum tube methods			
15. Demonstrate proficiency in performance of venipuncture by syringe methods			
16. Demonstrate proficiency in performance of venipuncture by butterfly method			
17. Demonstrate proficiency in handling order of draw			
18. Demonstrate accuracy inpatient identification			

- There is no minimum or maximum number of tasks that you must perform.
- The clinical instructor will determine the number needed to attain competency.

Students should work together with their respective mentors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor must comply with the laboratory's acceptable standards. While working in the laboratory, the student must meet laboratory standards for work habit skills in patient confidentiality, communication skills, laboratory safety, universal precautions, waste disposal, and equipment/work area maintenance.

It is requested that the student's competency checklist and professional evaluation be completed by the clinical instructor in the presence of the student so as to allow verbal feedback to the student regarding the student's progress and performance.

## TO THE CLINICAL INSTRUCTOR:

Use the following scale to score the student's competency for each item.

## LEVELS OF ACHIEVEMENT – PLEASE USE THE FOLLOWING SCORING CATEGORIES:

1. Student has difficulty grasping important functions and tasks in the laboratory. Consistently performs with errors, demonstrates an unacceptable attitude, or both. Very unsatisfactory; unable to improve.
  2. Student functions inconsistently in the laboratory, with constant and detailed instruction required to achieve acceptable performance. Unsatisfactory; needs much improvement.
  3. Student demonstrates acceptable performance with supervision. Requires assistance with evaluation of situations and solutions. Satisfactory; meets minimal standards.
  4. Student demonstrates good performance, is careful, and demonstrates adequate attention to detail. Requires minimal supervision. Satisfactory; meets expected standards.
  5. Student demonstrates superior performance with an above-average level of skill. Rarely requires assistance with evaluation of situations and solutions. Very Satisfactory; exceeds student standards.
- N/A Not Applicable – Use this if an item does not apply or if the competency was discussed only – please note if the competency was discussed only; the final evaluation grade will be based upon only the number of RATED items.

## HEMATOLOGY / COAGULATION CLINICAL COMPETENCY CHECKLIST

At the completion of the MLS 401 course, the student will have successfully completed the following:

Objective	Minimum	Actual	Clinical
	Achievement	Achievement	Instructor
	Level	Level	Initials
<b>HEMATOLOGY</b>			
<b>Specimen Management</b>			
1. Distribute specimens appropriately.	3		
2. Evaluate specimens for acceptance or rejection.	3		
3. Document specimen rejection according to department guidelines.	3		
4. Report and/or call results according to protocol.	3		
5. Maintain patient records according to protocol.	3		
6. Demonstrate safe techniques in handling and disposal of infectious materials according to lab protocol.	3		
<b>Quality Control/Quality Assurance/</b>			
<b>Quality Improvement</b>			
1. Perform Daily/Shift QC procedures according to lab standards.	3		
2. Evaluate QC data and identify appropriate corrective action when data is out of range.	3		
3. Evaluates cumulative QC data for abnormalities.	3		
4. Calibrate and perform preventative maintenance on hematology instrumentation.	3		
<b>Automated Hematology Analyzers</b>			
1. Operate the hematology analyzer(s); understand flow cytometry as it relates to hematology testing.	3		
2. Process and evaluate patient data for acceptability recognizing and documenting error codes.	3		
3. Perform calibration and instrument-to-instrument comparisons (when applicable), evaluate for acceptability.	3		
4. Correlate patient results with clinical significance.	3		
<b>Differentials and RBC / WBC Morphology</b>			
1. Recognize all the cells in the myelocytic series and name the characteristics of each. Recognize any inclusions that may appear in wbcs.	3		

2. Recognize all the cells in the erythroid series. Name the different kinds of rbcs (ie sickle, ovalocytes, etc...) and recognize any inclusions that may appear in rbcs.	3		
3. Prepare enough peripheral blood smears to become proficient.	3		
4. Perform a min. of 30 differentials. This will include the classification of leukocytes and the evaluation of rbc morphology.	3		
a. Identify and perform count on wbc's.	3		
b. Determine red cell variants and inclusions enumerating according to established criteria, using correct terms and spelling correctly.	3		
c. Assess relationship of red cell morphology to red cell indices.	3		
d. Estimate wbc and platelet counts and compare to automated counts	3		
e. Assess platelet morphology identifying abnormal forms.	3		
f. Report all data according to established policies, using correct terminology, and spelling all terms correctly.	3		
<b>Routine and Miscellaneous Hematology Procedures</b>			
<b>Manual WBC and RBC Counts</b>			
1. Using your laboratories methodology and SOPs, be able to perform routine manual wbc and rbc counts and calculations and discuss the proper counting areas used for wbc and rbc counts. Be able to correct wbc counts for nrbc's.	3		
2. Perform a min of 5 wbc manual counts (patients and controls) and 5 rbc manual counts (patient and controls). Evaluate and compare results with automated method results. Results must be within 5%.	3		
<b>Manual Platelet Counts</b>			
1. Using your laboratories methodology and SOPs, be able to perform routine manual platelet counts and calculations and discuss the proper counting areas used for platelet counts.	3		
<b>Reticulocyte Counts</b>			
1. Using your laboratories methodology and SOPs, be able to perform reticulocyte counts and site reference ranges.	3		
<b>Erythrocyte Sedimentation Rate</b>			
1. Using your laboratories methodology and SOPs, be able to perform ESRs with minimal supervision. Site the reference range for men, women, and children.	3		
<b>Sickle Cell Preps</b>			
1. Using your laboratories methodology and SOPs, be able to perform sickle cell preps correctly setting up, reading, evaluating, and reporting results.	3		
<b>Nasal Smears</b>			

1. Examine any nasal smears available; discuss the importance of nasal smears and explain the procedure used to prepare, stain and examine nasal smears.	3		
<b>Sperm Counts</b>			
1. Using your laboratories methodology and SOPs, be able to perform sperm counts correctly setting up, counting and reporting results. List the parameters measured in a sperm analysis and the normal values for each.	3		
<b>Bone Marrows</b>			
1. Using your laboratories methodology and SOPs, be able to Wright's stain bone marrow.	3		
2. Participate in as many bone marrow aspirations as possible and microscopically examine at least one bone marrow sample.	3		
3. Perform or discuss any helpful special stains available at your laboratory.	3		
4. Review slides that correlate to hematological diseases. Student should be able to identify lymphoid and myeloid morphological stages of maturation.	3		
<b>Body Fluids</b>			
1. Using your laboratories methodology and SOPs, be able to perform body fluid counts on the following if available: CSF, synovial, pleural, peritoneal, pericardial, and thoracentesis.	3		
2. Examine a prepared smear of a body fluid and identify the cells present.	3		
3. Successfully use and maintain the Cytospin.	3		
4. Examine cytospin preparations and identify the cell types present.	3		
<b>Other Hematology</b>			
List other tasks performed that may not have been included in the above lists.			
<b>COAGULATION</b>			
<b>Specimen Management</b>			

1. Distribute specimens appropriately.	3		
2. Evaluate specimens for acceptance or rejection.	3		
3. Document specimen rejection according to department guidelines.	3		
4. Report and/or call results according to protocol.	3		
5. Maintain patient records according to protocol.	3		
6. Demonstrate safe techniques in handling and disposal of infectious materials according to lab protocol.	3		
<b>Quality Control/Quality Assurance/</b>			
<b>Quality Improvement</b>			
1. Perform Daily/Shift QC procedures according to lab standards.	3		
2. Evaluate QC data and identify appropriate corrective action when data is out of range.	3		
3. Evaluates cumulative QC data for abnormalities.	3		
4. Calibrate and perform preventative maintenance on coagulation instrumentation.	3		
<b>Routine Coagulation</b>			
1. Using your laboratories methodology and SOPs, be able to perform a Prothrombin Time (PT) and site reference ranges.	3		
2. Using your laboratories methodology and SOPs, be able to perform an Activated Partial Thromboplastin Time (APTT) and site reference ranges.	3		
3. Using your laboratories methodology and SOPs, be able to perform a Fibrinogen Assay and site reference ranges.	3		
4. Using your laboratories methodology and SOPs, be able to perform a Fibrin Degradation Products (FDPs) and/or a D-dimer test and site reference ranges.	3		
<b>Automated Coagulation Analyzers</b>	<b>3</b>		
1. Successfully operate an automated coagulation instrument	3		
a. Process specimens and materials	3		
b. Determine specimen acceptability	3		
c. Reconstitute reagents and controls	3		
d. Load and operate instrument correctly.	3		
e. Evaluate patient and control values for acceptability, abnormal and/or panic values.	3		
f. Report data using correct units and terms	3		
g. Perform instrument maintenance.	3		
<b>Other Coagulation</b>			

List other tasks performed that may not have been included in the above lists.			

- There is no minimum or maximum number of tasks that you must perform.
- The clinical instructor will determine the number needed to attain competency.

Students should work together with their respective mentors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor must comply with the laboratory’s acceptable standards. While working in the laboratory, the student must meet laboratory standards for work habit skills in patient confidentiality, communication skills, laboratory safety, universal precautions, waste disposal, and equipment/work area maintenance.

It is requested that the student’s competency checklist and professional evaluation be completed by the clinical instructor in the presence of the student so as to allow verbal feedback to the student regarding the student’s progress and performance.

**TO THE CLINICAL INSTRUCTOR:**

Use the following scale to score the student’s competency for each item.

**LEVELS OF ACHIEVEMENT – PLEASE USE THE FOLLOWING SCORING CATEGORIES:**

1. Student has difficulty grasping important functions and tasks in the laboratory. Consistently performs with errors, demonstrates an unacceptable attitude, or both. Very unsatisfactory; unable to improve.
2. Student functions inconsistently in the laboratory, with constant and detailed instruction required to achieve acceptable performance. Unsatisfactory; needs much improvement.
3. Student demonstrates acceptable performance with supervision. Requires assistance with evaluation of situations and solutions. Satisfactory; meets minimal standards.
4. Student demonstrates good performance, is careful, and demonstrates adequate attention to detail. Requires minimal supervision. Satisfactory; meets expected standards.
5. Student demonstrates superior performance with an above-average level of skill. Rarely requires assistance with evaluation of situations and solutions. Very Satisfactory; exceeds student standards.

N/A Not Applicable – Use this if an item does not apply or if the competency was discussed only – please note if the competency was discussed only; the final evaluation grade will be based upon only the number of RATED items.



## IMMUNOHEMATOLOGY CLINICAL COMPETENCY CHECKLIST

At the completion of the MLS 402 course, the student will have successfully completed the following:

Objective	Minimum	Actual	Clinical
	Achievement	Achievement	Instructor
	Level	Level	Initials
<b>IMMUNOHEMATOLOGY</b>			
<b>Inventory and Processing</b>			
1. Document and report to the supervisor the daily donor unit inventory and order/return blood products based on anticipated needs and expiration dates.	3		
2. Perform daily inspection of donor units and document any abnormal findings for unit quarantine.	3		
3. Log-in donor units.	3		
4. Perform confirmatory ABO/Rh testing, as appropriate.	3		
5. Perform appropriate labeling of donor units.	3		
6. Discuss the storage and transport temperatures required of each component.	3		
<b>Blood Administration</b>			
1. Perform sign-out procedures including visual inspection of blood product.	3		
2. Follow blood unit to patient and observe bedside checks and starting of transfusion.	3		
3. Discuss the review of units returned to the blood bank with regard to acceptance for reissue.	3		
4. Discuss the procedure for emergency release of uncrossmatched blood.	3		
5. Demonstrate or describe the procedure for in-vivo crossmatch.	3		
6. Select and pool platelets and/or cryoprecipitate for transfusion and thaw fresh frozen plasma. State the storage and expiration time of each product after preparation for transfusion.	3		
7. Discuss the standards for storage, expiration and quality control of blood, platelets, cryo, and fresh frozen plasma.	3		
8. Discuss why blood is irradiated for selected patients.	3		
<b>Quality Control</b>			
1. Discuss the AABB standards for Blood Bank service records in relation to test results, units of blood used, patient's previous records, legal requirements of the # of years records are kept, and factors which can minimize human errors and assure Personnel Quality Control.	3		

2. Perform, analyze, and interpret the following daily quality control procedures according to the department SOP:	3		
a. Reactivity of routine reagents.	3		
b. Observe and record temperature of equipment.	3		
3. Perform or observe performance of the following required periodic quality control procedures:	3		
a. Change and evaluate refrigerator/freezer charts	3		
b. Perform hi/lo alarm test on refrigerator/freezers.	3		
c. Calibration of centrifuges.	3		
d. Calibration of cell washers.	3		
e. Calibration of thermometers.	3		
f. Evaluate temperature of donor units upon arrival.	3		
<b>Compatibility Testing</b>			
1. Organize work area and assemble materials.	3		
2. Determine acceptability of submitted specimen, initiate follow-up procedure for unacceptable specimen.	3		
3. Perform all serologic and record keeping procedures required to provide compatible blood for transfusion to include:	3		
a. ABO/Rh of patient, resolve discrepancy as needed.	3		
b. Antibody Screen	3		
c. Selection of appropriate donor units	3		
d. Major crossmatch techniques	3		
e. Accurate/legible completion of all lab forms.	3		
4. Discuss the storage/disposal of patient specimens.	3		
5. Recognize test reactions characteristic of the following situations and perform correct follow-up procedures:	3		
a. ABO cell-serum grouping discrepancies	3		
b. False positive Rh testing	3		
c. Single/multiple blood group allo-antibodies	3		
d. Rouleaux	3		
6. Discuss the criteria for Rh and Du variant testing with respect to donor units, patients, and administration of Rh pos vs Rh neg units.	3		

<b>Antibody Identification</b>			
1. Perform antibody identifications to include:	3		
a. Evaluation of patient dx, medication, and transfusion history.	3		
b. Single/multiple serum alloantibody(ies)	3		
c. Cold agglutinins	3		
d. HTLA antibodies	3		
e. Warm autoantibodies	3		
f. Direct Coombs	3		
g. Identification from acid elution	3		
h. Phenotyping of patient and donor units	3		
2. Perform and interpret special procedures for antibody testing/identification, and resolution of incompatibility, as available:	3		
a. Saline replacement for rouleaux	3		
b. REST absorption technique	3		
c. W.A.R.M. autoabsorption	3		
d. Neutralization technique for Sda antibody	3		
e. Enzyme testing for antibody enhancement	3		
f. Antibody titration procedures.	3		
<b>Obstetrical / Neonatal Considerations</b>			
1. Accurately determine the ABO/Rh type and antibody screen of maternal blood samples, interpret results, perform identification procedures as needed.	3		
2. Determine the origination of anti-D when identified.	3		
3. Evaluate patient history and test results to determine the need for antepartum Rhlg and postpartum Rhlg.	3		
4. Perform Rhlg work-ups, evaluate results	3		
5. Perform quantitative test for feto-maternal bleed, calculate the required dose of Rhlg.	3		
6. Perform antibody titration, interpret results as to titer and score.	3		
7. Perform cord blood studies to include:	3		
a. ABO/Rh type	3		
b. DAT			
c. Lui Freeze-Thaw Eluate	3		
d. Antibody identification from eluate			

8. Demonstrate the procedure for compatibility testing of neonates. procedures of each.	3		
9. Demonstrate the procedure for preparation of blood for aliquot or exchange transfusion.	3		
<b>Transfusion Complications</b>			
1. Discuss the signs and symptoms that may accompany hemolytic transfusion reactions.	3		
2. Discuss the protocol for the investigation of a transfusion reaction including initial and extended testing according to AABB standards.	3		
3. Discuss the most frequent cause of an acute hemolytic transfusion reaction.	3		
4. Discuss the characteristics of a delayed transfusion reaction, including the rationale and the usual consequence of such a reaction.	3		
5. Discuss the most frequent cause of a febrile transfusion reaction.			
6. Perform transfusion reaction work-ups to include the initial and extended work-up.	3		
7. Discuss the features of graft vs. host disease including etiology and prevention.	3		
8. Discuss the purpose of a <i>look-back</i> program for blood donors and recipients including testing, time limitations, and recipient notification..	3		
<b>Donor Operations</b>			
1. Discuss donor eligibility using AABB standards.	3		
2. Perform vital signs on prospective donors.	3		
3. Perform hemoglobin (copper sulfate) and hematocrit determinations from fingerstick specimens.	3		
4. Demonstrate understanding of the whole blood collection process.	3		
a. Blood Bags	3		
b. Blood Collection	3		
5. Identify donor room equipment and supplies and explain required quality control procedures for each.	3		
<b>Component Preparation</b>			
1. Discuss preparation of packed red blood cells, platelet concentrate, fresh frozen plasma, cryoprecipitate, frozen rbcs, and glycerolized rbcs.	3		
2. Operate the refrigerated centrifuges in regard to:	3		
a. Balancing centrifuge cups	3		
b. Setting temp, rpms, and timers	3		

3. Prepare platelet concentrate, fresh frozen plasma, and cryoprecipitate in regard to:	3		
a. Selection of units	3		
b. Initiation of component label and component inventory record.	3		
c. Selection of appropriate temp, rpm, and time	3		
d. Removal of plasma from red blood cells	3		
e. Storage temps	3		
f. Outdate	3		
g. Indications for use	3		
h. Quality control	3		
4. Observe preparation of washed rbcs / frozen rbcs	3		
5. Observe glycerolization of rbcs	3		
<b>Automated Immunohematology Analyzers</b>			
1. Correctly perform daily and weekly preventative maintenance on automated instruments.	3		
2. Correctly perform testing on automated analyzers.	3		
3. Correctly troubleshoot analyzer performance problems	3		
4. Evaluate patient results for critical values, short-sampling errors, and inappropriate specimens.	3		
5. Change or replace disposables as needed by the analyzers.	3		

- There is no minimum or maximum number of tasks that you must perform.
- The clinical instructor will determine the number needed to attain competency.

Students should work together with their respective mentors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor must comply with the laboratory's acceptable standards. While working in the laboratory, the student must meet laboratory standards for work habit skills in patient confidentiality, communication skills, laboratory safety, universal precautions, waste disposal, and equipment/work area maintenance.

It is requested that the student's competency checklist and professional evaluation be completed by the clinical instructor in the presence of the student so as to allow verbal feedback to the student regarding the student's progress and performance.

#### TO THE CLINICAL INSTRUCTOR:

Use the following scale to score the student's competency for each item.

**LEVELS OF ACHIEVEMENT – PLEASE USE THE FOLLOWING SCORING CATEGORIES:**

1. Student has difficulty grasping important functions and tasks in the laboratory. Consistently performs with errors, demonstrates an unacceptable attitude, or both. Very unsatisfactory; unable to improve.
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## CLINICAL CHEMISTRY CLINICAL COMPETENT CHECKLIST

At the completion of the MLS 402 course, the student will have successfully completed the following:

Objective	Minimum	Actual	Clinical
	Achievement	Achievement	Instructor
	Level	Level	Initials
<b>CHEMISTRY</b>			
<b>Specimen Management</b>			
1. Distribute specimens appropriately.	3		
2. Evaluate specimens for acceptance or rejection.	3		
3. Document specimen rejection according to department guidelines.	3		
4. Report and/or call results according to protocol.	3		
5. Maintain patient records according to protocol.	3		
6. Demonstrate safe techniques in handling and disposal of infectious materials according to lab protocol.	3		
7. Demonstrate proper use and location of MSDS information.	3		
8. Demonstrate proper specimen storage for routine chemistry assays.	3		
9. Identify physical characteristics of samples that may interfere with testing.	3		
<b>Quality Control/Quality Assurance/</b>			
<b>Quality Improvement</b>			
1. Perform Daily/Shift QC procedures according to lab standards.	3		
2. Evaluate QC data and identify appropriate corrective action when data is out of range.	3		
3. Evaluate cumulative QC data for abnormalities.	3		
4. Calibrate and perform preventative maintenance on chemistry instrumentation.	3		
<b>Automated Chemistry Analyzers</b>			
1. Identify different types of analyzers in the chemistry department.	3		
2. Identify the basic operating components of the analyzer and explain the function of each.	3		
3. Perform routine daily maintenance.	3		
4. Identify periodic (weekly, monthly etc...) maintenance requirements.	3		
5. Prepare reagents for use on the analyzers.	3		
6. Evaluate if specimens are adequate for analysis.	3		

7. Operate the automated chemistry analyzers.	3		
8. Evaluate and record QC data.	3		
9. Troubleshoot chemistry instrumentation or explain the procedures for troubleshooting.	3		
10. Correlate patient results with clinical significance.	3		
11. Evaluate inaccurate analyzer results.	3		
12. Complete an individual instrument task form for each analyzer in the chemistry department.	3		
<b>Reagent Preparation and General Lab Concepts</b>			
1. Properly reconstitute control or reagents using pipettes routinely used in the laboratory.	3		
2. Demonstrate an understanding of when to use and proper use of:			
a. Volumetric Pipettes (TD or TC)	3		
b. Serological Pipettes	3		
c. Micropipettes	3		
d. Repeater pipettes	3		
3. Perform dilutions and calculations on several patient samples (95% accuracy of previously analyzed samples)	3		
<b>Osmometry – Carbohydrate Studies</b>			
1. Perform glucose tolerance tests.	3		
2. Discuss epinephrine tolerance test, xylose tolerance test, and lactose tolerance test.	3		
3. Perform freeze-point osmometry or VP depression.			
4. Perform CSF glucose and/or lactate assays.	3		
5. Perform plasma lactic acid.	3		
6. Perform serum/plasma glucose on fasting and random samples.	3		
7. Perform or discuss Glycosylated Hemoglobin Assays.	3		
<b>Clinical Chemistry of Heme Metabolism and Non-Protein Nitrogen Compounds</b>			
1. Perform Neonatal and Adult Bilirubin	3		
2. Demonstrate an understanding of specimen integrity issues regarding the collection of bilirubin samples	3		
3. Perform ammonia, BUN, creatinine and uric acid assays (serum/plasma and urine if applicable)	3		
4. Perform and manually calculate Creatinine Clearances and 24 hour excretions.	3		
<b>Electrolytes</b>			
1. Perform Na, K, Cl, CO <sub>2</sub> , CA, MG, Phos, Iron, and TIBC	3		



2. Perform and/or discuss ionized calcium assays (understand collection and specimen integrity requirements).	3		
3. Calculate and interpret Anion Gaps.	3		
4. Perform Lithium assays.	3		
5. Evaluate electrolyte results to scrutinize sources of significant error.	3		
<b>Therapeutic Drug Monitoring</b>			
1. Discuss the significance of performing TDM.	3		
2. Discuss/differentiate between half-life and steady-state.	3		
3. Perform TDM assays employing proper analytical techniques.	3		
4. Assess drug test results for therapeutic management.	3		
5. Recognize abnormal and/or erroneous results.	3		
6. Correlate patient results with clinical significance.	3		
7. Record patient results, quality control, and maintenance according to departmental protocol.	3		
<b>Interpretation and Acceptance of Results</b>			
1. Discuss recording, reporting, and documenting results.	3		
2. Explain <i>Panic Values</i> or <i>Critical Values</i> and demonstrate how and when to report them.	3		
3. Explain <i>Linear Limits</i> , <i>Linear Ranges</i> , or <i>Reportable Ranges</i> and demonstrate how to handle and report samples outside these limits.	3		

- There is no minimum or maximum number of tasks that you must perform.
- The clinical instructor will determine the number needed to attain competency.

Students should work together with their respective mentors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor must comply with the laboratory's acceptable standards. While working in the laboratory, the student must meet laboratory standards for work habit skills in patient confidentiality, communication skills, laboratory safety, universal precautions, waste disposal, and equipment/work area maintenance.

It is requested that the student's competency checklist and professional evaluation be completed by the clinical instructor in the presence of the student so as to allow verbal feedback to the student regarding the student's progress and performance.

#### TO THE CLINICAL INSTRUCTOR:

Use the following scale to score the student's competency for each item.

**LEVELS OF ACHIEVEMENT – PLEASE USE THE FOLLOWING SCORING CATEGORIES:**

1. Student has difficulty grasping important functions and tasks in the laboratory. Consistently performs with errors, demonstrates an unacceptable attitude, or both. Very unsatisfactory; unable to improve.
2. Student functions inconsistently in the laboratory, with constant and detailed instruction required to achieve acceptable performance. Unsatisfactory; needs much improvement.
3. Student demonstrates acceptable performance with supervision. Requires assistance with evaluation of situations and solutions. Satisfactory; meets minimal standards.
4. Student demonstrates good performance, is careful, and demonstrates adequate attention to detail. Requires minimal supervision. Satisfactory; meets expected standards.
5. Student demonstrates superior performance with an above-average level of skill. Rarely requires assistance with evaluation of situations and solutions. Very Satisfactory; exceeds student standards.

N/A Not Applicable – Use this if an item does not apply or if the competency was discussed only – please note if the competency was discussed only; the final evaluation grade will be based upon only the number of RATED items.

## MEDICAL LABORATORY SCIENCE CLINICAL ROTATION PROFESSIONAL EVALUATION

Student Name: \_\_\_\_\_

Please evaluate the student's performance during the clinical rotation according to the following criteria:

1. Student has difficulty grasping important functions and tasks in the laboratory. Consistently performs with errors, demonstrates an unacceptable attitude, or both. Very unsatisfactory; unable to improve.
2. Student functions inconsistently in the laboratory, with constant and detailed instruction required to achieve acceptable performance. Unsatisfactory; needs much improvement.
3. Student demonstrates acceptable performance with supervision. Requires assistance with evaluation of situations and solutions. Satisfactory; meets minimal standards.
4. Student demonstrates good performance, is careful, and demonstrates adequate attention to detail. Requires minimal supervision. Satisfactory; meets expected standards.
5. Student demonstrates superior performance with an above-average level of skill. Rarely requires assistance with evaluation of situations and solutions. Very Satisfactory; exceeds student standards.

N/A Not Applicable – Use this if an item does not apply; the final evaluation grade will be based upon only the number of RATED items.

### WORK HABITS

1. Reliable	1	2	3	4	5	N/A
2. Thorough/Completes Tasks	1	2	3	4	5	N/A
3. Careful	1	2	3	4	5	N/A
4. Organized	1	2	3	4	5	N/A
5. Conscientious	1	2	3	4	5	N/A
6. Team Player	1	2	3	4	5	N/A
7. Initiative	1	2	3	4	5	N/A
8. Prompt/Present	1	2	3	4	5	N/A

## INTERPERSONAL SKILLS

9. Confidential	1	2	3	4	5	N/A
10. Communication Skills	1	2	3	4	5	N/A
11. Cooperative	1	2	3	4	5	N/A
12. Attentive	1	2	3	4	5	N/A
13. Positive Attitude	1	2	3	4	5	N/A
14. Respectful	1	2	3	4	5	N/A
15. Tactful	1	2	3	4	5	N/A
16. Interested	1	2	3	4	5	N/A

## CRITICAL THINKING

17. Critical Evaluation	1	2	3	4	5	N/A
18. Problem Solver	1	2	3	4	5	N/A
19. Common Sense	1	2	3	4	5	N/A
20. Inquisitive	1	2	3	4	5	N/A
21. Objective	1	2	3	4	5	N/A
22. Motivated	1	2	3	4	5	N/A

## PSYCHOLOGICAL MATURITY

23. Honest/Truthful	1	2	3	4	5	N/A
24. Dependable	1	2	3	4	5	N/A
25. Adaptable/Flexible	1	2	3	4	5	N/A
26. Accepts Criticism	1	2	3	4	5	N/A
27. Accepts Guidance	1	2	3	4	5	N/A
28. Accepts Limitations	1	2	3	4	5	N/A

29. Confident	1	2	3	4	5	N/A
30. Mature	1	2	3	4	5	N/A
31. Calmness/Self-Control	1	2	3	4	5	N/A

**PHYSICAL APPEARANCE**

32. Neat and Orderly	1	2	3	4	5	N/A
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WE HAVE REVIEWED TOGETHER AND DISCUSSED THIS EVALUATION ON \_\_\_\_\_ (DATE)

Signed \_\_\_\_\_ (Clinical Supervisor)

Signed \_\_\_\_\_ (Clinical Student)

Additional Comments:

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**MEDICAL LABORATORY SCIENCE CLINICAL AFFILIATE ORIENTATION CHECKLIST**

Clinical Affiliate: \_\_\_\_\_

Course: \_\_\_\_\_

The information listed below has been explained to me:

Student Signature \_\_\_\_\_ Date \_\_\_\_\_

Topic	Date Completed
Review of practicum objectives	
Professional performance expectations and grading policy	
Clinical Practicum Schedule including daily work hours	
Overview of department structure and laboratory organization	
Safety regulations and policies	
Protocol for reporting results and contribution to laboratory services	
Introduction to personnel	

The student is responsible for returning the completed Orientation Checklist to the University MLS Program Director.

## THOMAS UNIVERSITY CLINICAL ROTATION STUDENT EVALUATION

Affiliate / Year \_\_\_\_\_ Department \_\_\_\_\_

This evaluation will be confidential. Mark an "X" in one box on each line. Write NA if the item is not applicable. Please complete all sections.

Orientation	Yes	No	Somewhat
1. Were you given written objectives for the rotation?			
2. Were you made aware of the evaluation process and the grading process of students?			
3. Were you given your clinical practicum schedule?			
4. Were you given the names of the staff in the department so that you were made to feel part of the laboratory?			
5. After the orientation process, did you have a understanding as to what was expected of you?			
<b>Clinical Instruction</b>			
6. Were the learning experiences well planned and structured			
7. Did the learning experiences reflect the goals of the course objectives?			
8. Was their flexibility in your rotation to provide for the level of competency you demonstrated?			

9. Was adequate time provided to fulfill the course objectives			
10. Was extra time, if available, utilized appropriately for learning activities (projects, case studies, study questions)?			
11. At the completion of the rotation, were you adequately confident in your laboratory knowledge & performance?			
<b>Supervision</b>			
12. Did you have a clear understanding as to whom you were directly responsible?			
13. Did you have adequate opportunities to communicate with your instructor(s)?			
14. Based on your experience and skill, was the degree of supervision appropriate?			
<b>Laboratory Interactions</b>			
15. Did you have some opportunities to interact with members of the staff in sharing professional concerns?			
16. Were you given opportunities to attend / participate in any inservice education?			
17. Did you feel the personnel in this department held a positive attitude toward students and teaching?			
<b>Evaluation Process</b>			



18. Were you satisfied with the frequency in receiving your clinical evaluations?			
19. Were you given an opportunity to comment on your final evaluation?			
20. Would you recommend this rotation to other students?			
21. Comment on the strengths of the rotation.			
22. Comment on the weaknesses of the rotation.			
23. Other comments and recommendations.			

## CLINICAL PORTFOLIO

Each student will complete a clinical portfolio for each internship they are assigned. Please read and follow the directions listed below:

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### WHAT IS A PORTFOLIO?

A portfolio is a purposeful collection of student work, accumulated over time, and reveals the extent of student learning, achievement, and development. Emphasis is on the condition of “purposeful,” because without a clearly identifiable purpose a portfolio will be a mere accumulation of products, equivalent to storing your work in a file cabinet.

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### WHAT IS THE PURPOSE?

Students are expected to collect, select, and reflect. In building a portfolio of selected pieces and explaining the basis for your choices, you generate criteria for good work, with professor and peer input.

Student portfolios serve as valuable tools for assessment of learning outcomes. They are designed to serve purposes such as to:

- showcase your best work
- showcase your growth
- provide evidence of your capacity for self-assessment
- provide a complete collection of work for documentation and archiving

Type of learning outcomes for which portfolios are used:

- Metacognitive processing skills
- Critical thinking
- Problem-solving
- Writing and communication
- Self assessment

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## ASSEMBLING THE PORTFOLIO (CAMPUS BASED STUDENTS)

### Materials Needed:

- Two inch binder
- Package of eight (8) dividers
- Eight sheet protectors
- Optional: color paper

Since you will develop a portfolio for each clinical department, setting up the portfolio helps facilitate the process each time a new portfolio is begun.

Start by assembling your model portfolio. The following instructions will guide you through the process.

Design a portfolio cover sheet labeled “Clinical Portfolio ” and your name. The cover should be original, creative and colorful, and should represent some aspect of medical laboratory science.

Create a spine label. The label should include your name, “Medical Laboratory Science”, and “Clinical Portfolio.”. You should be creative so far as font and colors used.

Label the tabs of the eight dividers as follows: Resume, Phlebotomy/Specimen processing, Hematology, Coagulation, Urinalysis/Body Fluids, Serology, Clinical Chemistry, Immunohematology and Clinical Microbiology.

Insert dividers in the portfolio along with sheet protectors for each section. Ideally, the tabs should be visible. One suggestion is to slip each divider into a sheet protector making a slit in the protector where the tab is located to allow the tab to protrude from the plastic. Do this for each divider until all eight are completed. Another suggestion is to purchase self-adhesive tabs and adhere them to the sheet protectors or use pocket dividers with a tab.

Make cover sheets for each of the eight dividers made in step 4. These cover sheets should be well designed, show creativity, match the tabs on each divider and include an illustration of the course. For example, in Hematology place pictures of RBCs and WBCs on the cover sheet. Slip each cover sheet into the appropriate divider/protector.

Separate each area into three sections IN THE FOLLOWING ORDER: results, automation and self-reflection. This can quickly be done on a computer. Make a cover sheet for each of sections. Print eight copies of each sheet, one set for each clinical section in the portfolio. Slip each cover sheet into a sheet protector. Use index tabs or neatly printed sticky notes to label each of the three sections. Place one of each into each of the outcome sections.

Congratulations! You have now completed your “model” portfolio. With this, and the six steps just outlined, you are now ready to assemble your own portfolio.

Throughout the portfolio process you will have the opportunity to learn about yourself in relation to the student outcomes. You will assess your skills, interests, and abilities and reflect on your growth and progress in all facets of the courses taken. Self-reflection is an integral part of the portfolio process and an essential skill for problem solving and life planning.

## AUTOMATION

Use the *Automation Template* to create your report. MUST be word processed! The automation report should have a cover sheet with a representative picture of the instrument/automation.

Automation Report: See *Detailed instructions* in the following pages. MUST review this section!

Spend time in the laboratory going through the manufacturer’s procedure manual. Feel free to go to the manufacturer’s web site.

The contents of your portfolio MUST BE your own work. The student is held to the Academic Honesty policy described in the Thomas University Student Handbook and on each course syllabus.

## RESULTS

The results you provide will be dependent upon the Clinical department.

Copies of completed competencies/skills assessments, first and last results sheets (for example urine microscopic). The results sheets should include representative samples of work performed at the beginning and end of the semester, without inclusion of patient information or identifiers. A tally of the number of procedures performed that has been co-signed by the clinical preceptor should be included. Also include attendance sheets/log.

Copies of any practicals, tests, worksheets etc given to you while in the department should be present.

Copies of your assigned case study assignments and your solutions.

Copies of any documentation where you performed troubleshooting activities, instrument maintenance, quality control evaluation, comparison studies, linearities etc.

When you create your results sections you may wish to pick the "worst" of your first attempts and the "best" of your final attempts. If you wish you can copy the first skills on one color sheet of paper and select paper of a different color to copy your final attempt. The goal of having your results in your portfolio is to demonstrate to all who view it how far you have come since your first attempt at performing a skill.

## STUDENT REFLECTION

The heart of the portfolio process is reflection. Reflection is taking the time to give careful consideration to work and self, to look at the evidence and honestly assess learning and growth. Reflection is a skill that must be developed, practiced and nurtured. It is truly an integration of developing the body of knowledge necessary for understanding self and the world, the communication skills to express thoughts and observations with clarity, the metacognitive skills to examine one's own thinking, the emotional intelligence to be personally honest, and the life skills of taking responsibility and control of one's own life.

Self-reflection may have different meanings to different people depending on what they value as important and the intended use of the reflection. However, for those who believe the goal of assessment is to educate and not to audit, self-reflection is not an option but a necessary component of a portfolio.

The primary goal of the reflection is to have you think critically of your own work; not just the products, but the processes involved in the creation of the products. Reflections give you an opportunity to learn about how you learn. For example, you need to justify the selections in your portfolio, describe how they demonstrate achievement of the learning outcomes. You need to write about what you have learned and experienced in the course and how your work has changed over time.

An important part of working in the clinical laboratory involves self reflection. For example, for instrumentation, if calibration or quality control results do not give expected values what must be done? You must know how a piece of equipment operates in order to be able to problem solve it. You must know the type of samples that can be utilized so you will not test an unacceptable sample which will negatively affect the results. What are the limitations of the equipment, i.e., what is the linearity? Extremely high or low results may not be valid. Reflecting on performance of procedures is very enlightening, for example, when performing a procedure in the work place you make an error, when it is brought to your attention you must reflect on how the error occurred and develop a plan of action to prevent this error from occurring again in the future. All employees are evaluated on an annual basis. You are asked to self reflect on your strengths and weaknesses as they relate to your work. The portfolio process will teach you to gain the necessary skills which will be applied to the work place.

For each skill performed describe what you found most difficult when you FIRST performed the skill? There may be more than one item to list, i.e., focusing the microscope, finding the grid, etc.

Reflect on the first time you performed the skill and the last time you performed the skill. Compare your results (first and last) and describe how you feel now, i.e., your level of comfort performing the skill. If you are still not comfortable with the skill describe why and what you must do to gain confidence in performing this skill.

After reflecting on each skill state which one you found to be MOST difficult. What efforts will you make to feel proficient and confident in that skill?

After reflecting on each skill state the skill you feel most proud and confident of achieving. Describe why you selected this skill.

What was the most (satisfying, frustrating, etc.) experience reflected in your portfolio?

In the self- reflection section, use your journal and BlackBoard postings as your guide and answer the following:

When creating your reflection the top of the page should have "Reflection for (clinical section)" then "Name" then "Date". The self-reflection MUST be neatly word processed and demonstrate thoughtful analysis of the progress in gaining knowledge and skills.

### TIME FRAME

Recommended time to complete each section:

- Creating portfolio notebook - 4 hours.
- Urinalysis/Body Fluids - 8 hours
- Hematology - 16 hours
- Coagulation - 8 hours
- Serology - 8 hours
- Clinical Chemistry - 14 hours
- Blood Bank - 16 hours
- Clinical Microbiology - 23 hours

### PORTFOLIO GRADING – SEE GRADING RUBRIC

NOTE: The portfolio must be submitted by the due date stated in your course syllabus. ALSO, for rotations which may or may not have automation, like Immunohematology and Serology, the automation points will be split between results, reflection and submission of paperwork.

### AUTOMATION REPORTS: INSTRUCTIONS

List the make and model – the name of the instrument and who makes the instrument (example: LH750 made by Coulter)

Principle of operation: what reacts to give the patient result. If it is an antibody/antigen reaction –it should be specifically explained in detail. If it counts cells – then explain how the instrument does it.

Read the procedure manual or the manufacturer's instrument guide to get this information. Simply stating that a hematology instrument "counts cells" would be an inappropriate description and will be graded as such.

Number of samples – be specific – you need a NUMBER! This information can be found either in the procedure manual or manufacturer's guide. It may pertain to the maximum number of samples that can be tested at one time. (Example: blood culture instrument can hold up to 300 bottles at one time).

Name of tests performed – be specific. "Routine blood bank tests" is not sufficient...must list ABO/Rh, antibody screen, antibody ID.....

Quality control – "Pre-made controls" is not acceptable. For example in Hematology – "Three levels of controls are used with High, Low and Normal. Specific ranges are given and if the results are outside of these ranges....."Look at the procedure manual and specifically state what QC is performed.

Calibration – "The machine runs calibration" is not acceptable. Refer to the procedure manual and describe specifically how the calibration is performed on the instrument, how often it is required, what calibrators must be used, etc.

Preventive maintenance – This is an essential function of the job. Does the tubing need to be cleaned? How? How often? Does the instrument require flushing? How frequently, With what? Why?

Acceptable samples – "plasma sample" is not an acceptable answer. What type of plasma? EDTA? Heparin? How old can the sample be? Are hemolyzed lipemic, icteric samples acceptable?

Limitations of the instrument – what specifically may cause erroneous results like false positives, false negatives, inaccurate cell counts or automated diffs, or inaccurate coagulation results. Automation makes our lives easier, but you must be knowledgeable about the limitations to be able to troubleshoot and problem-solve erroneous results.

## AUTOMATION REPORT

STUDENT NAME: \_\_\_\_\_

Department/Rotation: \_\_\_\_\_

Type in the required information in the form below. Fill out a separate form for each instrument used. If available, a picture of the instrument is a very nice addition to the report.

1. List the make and model:
2. Principle of operation:
3. Number of samples which can be analyzed per hour.
4. Name of tests performed on this analyzer:
5. Quality control procedures that must be performed.
6. Calibration that must be performed:
7. Preventive maintenance that must be performed:
8. Acceptable samples:
9. Limitations of use of the instrument:



## PORTFOLIO GRADING RUBRIC

	Maximum points	Score
<p>Document assembly</p> <p>Following instructions and submitting the document in the correct format</p>	20	
<p>Automation</p> <p>Submission of the automation report for all departmental automation (if department has no automation, these points will be divided into other sections)</p>	10	
<p>Results</p> <p>Skill assessment sheets/ professional evaluations/ etc</p>	30	
<p>Reflection</p> <p>Minimum of one page per skill. The more skills covered, the longer the reflection should be.</p>	20	
Spelling/Grammar/Punctuation	20	
<b>TOTAL POINTS</b>	<b>100</b>	

