

**AUBURN UNIVERSITY
MONTGOMERY**

**MEDICAL TECHNOLOGY
CLINICAL LABORATORY SCIENCE
ONLINE OPTION**

STUDENT HANDBOOK

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This Handbook is not a contract. It is a collection of Board of Trustees' and administrative policies that govern action pertaining to Auburn University Montgomery Medical Technology students and a compilation of information about the University and current practices that may be of practical use to Medical Technology students. Some material contained herein may include summaries of University policies. Complete policies may be found in the *AUM Undergraduate Catalog* and the *AUMANAC*, the student handbook of AUM.

Policy statements printed herein are subject to change from time to time; information will be updated on a regular basis. Changes and updated material will be published and distributed to Medical Technology students in a timely manner.

WELCOME

Welcome to the Medical Technology/Clinical Laboratory Science (MT/CLS) Program at Auburn University Montgomery (AUM). The MT/CLS Program offers an **ONLINE** option for qualified individuals with experience in the clinical/medical laboratory who wish to receive their Bachelor of Science degree and become eligible for certification at the medical technologist/clinical laboratory scientist level. The **ONLINE** option is a structured program requiring six or nine consecutive semesters to complete once professional phase courses are begun. At the same time this option provides the flexibility of completing required courses at any time (24 hours a day, 7 days a week) during the semester in which the courses are offered.

PROGRAM MISSION

The mission of the AUM MT/CLS program is to provide exemplary laboratory education through instruction, research and service. The program is committed to the task of assuring that graduates have the necessary knowledge, skills and attitudes required to fulfill current and future professional roles and positions as members of the healthcare team.

DESCRIPTION OF PROGRAM

The MT/CLS Program offers this **ONLINE** option via the World Wide Web. This option is a distance learning program designed for certified clinical/medical laboratory technicians who have prior clinical laboratory experience with modern laboratory instrumentation and military laboratory personnel who have completed military medical laboratory specialist school and have laboratory experience with modern clinical laboratory instrumentation.

The **ONLINE** option is divided into two phases. The first phase is the pre-professional phase. During this phase all State of Alabama mandated core courses and prerequisite science/math courses that are necessary for the B.S. degree are completed. These courses may be taken at AUM or a college/junior college in close proximity to the participant's residence. Once the pre-professional courses have been completed, qualified individuals will be permitted to begin the professional phase. The professional phase begins **ONLY** in the Fall Semester and consists of on-line MT/CLS courses that are offered over the next six consecutive semesters. (There is also an optional nine consecutive semester plan available.) Spreading the MT/CLS courses over these six/nine semesters will provide the flexibility needed to complete the program while maintaining a job. The professional phase MT/CLS courses will be available on-line 24 hours a day, seven days a week. This flexibility allows these courses to be completed around work schedules and family/personal activities. Thus, the advantage of this **ONLINE** option is that pre-professional and professional phase MT/CLS courses may be completed without having to relocate.

This **ONLINE** option is designed to recognize the experience of qualified participants by **NOT** requiring these individuals to come on campus and perform introductory laboratory exercises that would normally be required of individuals training in the field for the first time. The focus of the required on-line courses will be the theoretical information related to the participant's experience.

Participants in the **ONLINE** option will be required to demonstrate the same clinical experience competencies at the same proficiency levels required of all AUM MT/CLS students. For those in the **ONLINE** option, clinical experience competencies will be demonstrated in an approved clinical facility, typically the participant's place of employment. These competencies are delineated in the Entry Level Competencies section of the student handbook and are the same for all AUM MT/CLS students regardless of the option followed.

AUM reserves the right to determine if the clinical facility is suitable for providing the required experiences.

Upon completion of this program, students earn a Bachelor of Science in Biology and/or a Certificate of Completion from an accredited MT/CLS Program. Graduates are eligible to take national certification examinations to become certified medical technologists/clinical laboratory scientists.

PROGRAM FACULTY

Director Kyle Taylor, M.Ed., MT(ASCP), CLS(NCA); **Office** 208 Moore Hall;
Phone (334)244-3302; **Fax** (334)244-3146; **e-mail** jtaylor@aum.edu;
Teaching Responsibility Bacteriology, Education, Mycology, Parasitology,
Urinalysis/Body Fluids, Perspectives in CLS

Faculty Kathy Jones, M.S., MT(ASCP), CLS(NCA); **Office** 207B Moore Hall
Phone (334)244-3254; **e-mail** kjones31@aum.edu;
Teaching Responsibility Chemistry, Comprehensive Review, Immunology/
Serology, Laboratory Techniques, Phlebotomy, Perspectives in CLS

Virginia Hughes, M.S. MT(ASCP)SBB; **Office** 206 Moore Hall
Phone (334)244-3606; **Fax** (334)244-3146; **e-mail**
vhughes@aum.edu; **Teaching Responsibility** Immunohematology,
Hematology, Laboratory Management

All university faculty members are certified medical technologists with experience in clinical laboratory practice, clinical laboratory education, and scientific research.

ACCREDITING AGENCY

The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 8410 W. Bryn Mawr Avenue, Suite 670, Chicago, Illinois, 60631. NAACLS can be contacted by phone at 773-714-8880, by Internet at <http://www.naacls.org>, or by email at info@naacls.org.

DESCRIPTION OF THE PROFESSION

The following description is provided by NAACLS.

“The clinical laboratory professional is qualified by academic and applied science education to provide service and research in clinical laboratory science and related areas in rapidly changing and dynamic healthcare delivery systems. Clinical laboratory professionals perform, develop, evaluate, correlate and assure accuracy and validity of laboratory information; direct and supervise clinical laboratory resources and operations; and collaborate in the diagnosis and treatment of patients. The clinical laboratory professional has diverse and multi-level functions in the areas of analysis and clinical decision-making, information management, regulatory compliance, education and quality assurance/performance improvement wherever laboratory testing is researched, developed or performed. Clinical laboratory professionals possess skills for financial, operations, marketing, and human resource management of the clinical laboratory. Clinical laboratory professionals practice independently and collaboratively, being responsible for their own actions, as defined by the profession. They have the requisite knowledge and skills to educate laboratory professionals, and others in laboratory practice as well as the public.

The ability to relate to people, a capacity for calm and reasoned judgment and a demonstration of commitment to the patient are essential qualities. Communications 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.”

PROGRAM GOALS

The primary goals of this program are designed to fulfill the mission of the program and are as follows:

1. To maintain a nationally accredited program in medical technology (MT/CLS).
2. Design and implement a curriculum where upon completion of the program the students demonstrate the entry level competencies necessary to gain employment in the MT/CLS or related laboratory field.

ENTRY LEVEL COMPETENCIES

The educational experiences in the AUM MT/CLS program are designed to ensure that students are well prepared to enter the profession of Clinical Laboratory Science and continue to learn throughout their professional career. At the completion of the AUM MT/CLS program students will have developed the following entry level competencies:

Cognitive Domain - Throughout the course of study in the AUM MT/CLS Program, the student shall develop the ability to:

1. Explain the functions of each of the human body systems.
2. Correlate the physiologic functions of the human body with laboratory assessment of each.
3. Integrate patient data for evaluation of validity of laboratory test results.
4. Recognize a problem or discrepancy in test results, identify the cause, and determine what action should be taken to correct the problem.
5. Evaluate (analyze) laboratory procedures/techniques and equipment.
6. Describe the value of education for maintaining professional expertise (proficiency).
7. Outline the basic principles of management as they pertain to the clinical laboratory.
8. Describe the function and utility of information systems in the clinical laboratory.
9. Design a research project to evaluate published clinical laboratory studies.

Psychomotor Domain - Throughout the course of study in the AUM MT/CLS Program, the student shall develop the ability to:

1. Perform all collection and testing procedures of blood and body fluids with the highest degree of proficiency.
2. Follow established procedures/directions in the process of performing routine and complex laboratory testing.
3. Demonstrate time management skills when performing multiple laboratory assays while maintaining accuracy.
4. Organize work flow and keep work area safe, neat and clean.
5. Comply with safety regulations and universal precautions 100% of the time.
6. Evaluate quality control and quality assurance assessments.
7. Implement corrective action to maintain accuracy and precision in laboratory testing.
8. Develop and perform preventive/corrective maintenance of laboratory instruments.
9. Apply computer technology in clinical laboratory data processing, data reporting and information retrieval.
10. Develop and deliver a unit of instruction pertaining to MT/CLS.
11. Conduct a research project to evaluate published clinical laboratory studies.

Affective Domain - Throughout the course of study in the AUM MT/CLS Program, the student shall display each of the following characteristics:

1. Interact with fellow laboratory professionals, other members of the healthcare team, patients, and the general public in a professional consultative manner.
2. Honor the confidentiality of patient information by maintaining strong professional ethics and not sharing such information with unauthorized personnel.
3. Represent the MT/CLS profession by maintaining a professional appearance and behavior which is in accordance with safety guidelines and dress code.
4. Display dependability by arriving at clinical experience on time, adhering to program/clinical site regulations regarding attendance and notifying those in charge when late or absent.
5. Pursue quality in work by following procedures accurately, using quality control techniques, and solving problems.
6. Assume responsibility for personal actions.
7. Work cooperatively with fellow laboratorians by seeking to assist with section/department workload, when appropriate.

COURSES REQUIRED FOR COMPLETION OF ONLINE OPTION

Pre-Professional MT/CLS Requirements					
<p><u>Written Composition:</u> 6 hrs (C or better in each course is required) ENGL 1010 English Composition I ENGL 1020 English Composition II</p> <p><u>Humanities and Fine Arts:</u> 12 hrs (Students must complete a 6-hour sequence in either literature or history. Students must take at least one course in literature and one course in fine arts (*). COMM 1010 or 2212 is required.) COMM 1010 Intro. to Human Comm. COMM 2212 Public Speaking ENGL 2530 Survey of Eng. Lit. I ENGL 2540 Survey of Eng. Lit. II ENGL 2570 Survey of Am. Lit. I ENGL 2580 Survey of Am. Lit. II INTL/ENGL 2600 Sur. of Lit. West. World I INTL/ENGL 2610 Sur. of Lit. West. World II VISU 1000* Art Appreciation VISU 2030* Art History I VISU 2040* Art History II MUSI 2110* Music Appreciation PHIL 2000 Reas. and Crit. Thinking PHIL 2010 Intro. to Philosophy PHIL 2100 Applied Ethics THEA 2040* Theater Appreciation FREN 1010/1020/2010/2020 French GERM 1010/1020/2010/2020 German SPAN 1010/1020/2010/2020 Spanish</p>		<p><u>History, Social and Behavioral Sciences</u> 12 hrs (Students must complete a 6-hour sequence in either literature or history. Students must take at least one course in history.) INTL/ANTH 2110 Cultural Anthropology ECON 2010 Economics I (Micro) ECON 2020 Economics II (Macro) INTL/GEOG 2050 Geo. of World Regions INTL/GEOG 2150 Cultural Geography HIST 1010 World History I HIST 1020 World History II HIST 2010 US History to 1877 HIST 2020 US History Since 1877 PSYC 2110 General Psychology POLS 2020 Inst Am State Nat Gov SOC 2000 Intro. to Sociology</p> <p><u>Natural Sciences and Mathematics:</u> (See Notes below for additional Science and Math information.) BIOL 1010/1011 Principles of Biology BIOL 2010/2011 General Microbiology BIOL 2110/2111 Human Anatomy Physiology II CHEM 1100/1101 General Chemistry I CHEM 1200/1201 General Chemistry II CHEM 2300/2301 Applied Organic Chemistry MATH 1120 Pre-Calculus Algebra MATH 2670 Statistics CSCI 1000 Survey of Computer</p>			
<p>Notes:</p> <ul style="list-style-type: none"> ◆ The MT/CLS Program requires a grade of “C” or better in all science and math courses. ◆ Organic Chemistry I (CHEM 3100/3101) may be taken in place of CHEM2300/2301. 					
Two-Year Professional Phase Curriculum					
First Year Professional Phase MT/CLS Courses					
FALL SEMESTER		SPRING SEMESTER		SUMMER SEMESTER	
CLLS 3013 - Lab Techniques	4	CLLS 3243 - Clin Hematology I	3	CLLS 3253 - Clin Hematology II	3
CLLS 3103 - Immunology/Serology	4	CLLS 3353 - Mycology/Parasit I	3	CLLS 4080 - Manage/Education	2
CLLS 3203 - Urinalysis/Body Fluids	$\frac{3}{11}$	CLLS 3443 - Clin Chemistry I	$\frac{4}{10}$	CLLS 4453 - Clin Chemistry II	$\frac{4}{9}$
Second Year Professional Phase MT/CLS Courses					
FALL SEMESTER		SPRING SEMESTER		SUMMER SEMESTER	
CLLS 3303 - Clin Microbiology I	3	CLLS 3153 - Immunohematology I	3	CLLS 4040 - Comp. Review	1
CLLS 4263 - Clin Hematology III	4	CLLS 3313 - Clin Microbiology II	4	CLLS 4163 - Immunohematology II	3
CLLS 4463 - Clin Chemistry III	$\frac{2}{9}$	CLLS 3503 - Perspectives in CLS	$\frac{3}{10}$	CLLS 4323 - Clin Microbiology III	$\frac{4}{8}$

Three-Year Professional Phase Curriculum					
First Year Professional Phase MT/CLS Courses					
FALL SEMESTER		SPRING SEMESTER		SUMMER SEMESTER	
CLLS 3103 - Immunology/Serology CLLS 3203 - Urinalysis/Body Fluids	4 $\frac{3}{7}$	CLLS 3243 - Clin Hematology I CLLS 3353 - Mycology/Parasit I	3 $\frac{3}{6}$	CLLS 3253 - Clin Hematology II CLLS 4080 - Manage/Education	3 $\frac{2}{5}$
Second Year Professional Phase MT/CLS Courses					
FALL SEMESTER		SPRING SEMESTER		SUMMER SEMESTER	
CLLS 3013 - Lab Techniques CLLS 4263 - Clin Hematology III	4 $\frac{4}{8}$	CLLS 3153 - Immunohematology I CLLS 3443 - Clin Chemistry I	3 $\frac{4}{7}$	CLLS 4163 - Immunohematology II CLLS 4453 - Clin Chemistry II	3 $\frac{4}{7}$
Third Year Professional Phase MT/CLS Courses					
FALL SEMESTER		SPRING SEMESTER		SUMMER SEMESTER	
CLLS 3303 - Clin Microbiology I CLLS 4463 - Clin Chemistry III	3 $\frac{2}{5}$	CLLS 3313 - Clin Microbiology II CLLS 3503 - Perspectives in CLS	4 $\frac{3}{7}$	CLLS 4040 - Comp. Review CLLS 4323 - Clin Microbiology III	1 $\frac{4}{5}$

MT/CLS CURRICULUM

All courses have the **CLLS** prefix.

- 3013 Laboratory Techniques (4).** An introduction to the basic techniques used by clinical laboratory scientists. Laboratory safety and current issues in health care will be explored.
- 3103 Immunology and Serology (4).** A study of the human immune system in health and disease. Laboratory exercises are serologic procedures used in the laboratory diagnosis of immunologic and infectious diseases.
- 3153 Immunohematology I (3).** This course applies the basic theory of immunology and genetics to the human blood group systems and transfusion practice. Basic immunohematology techniques will be covered in the laboratory sessions.
- 3203 Urinalysis and Body Fluids (3).** The physiologic mechanisms of the kidney will be discussed along with the importance of the kidney in homeostasis. Other body fluids commonly encountered in the clinical setting will also be discussed.
- 3243 Clinical Hematology I (3).** A study of human hemostatic mechanisms, its diseases, and abnormalities. This course will include a study of the origin and maturation of the formed elements of human blood. Laboratory exercises will focus on the evaluation of hemostatic function and anemia, as well as the morphology of formed elements of the blood.
- 3253 Clinical Hematology II (3).** A study of erythrocyte abnormalities and associated disease states. The laboratory will focus on methods used in the evaluation of abnormal erythrocyte morphology.
- 3303 Clinical Microbiology I (3).** Fundamentals of molecular diagnostics, including extraction techniques, electrophoresis, PCR, and staining techniques used to evaluate DNA will be presented. Also topics in microbiology will be introduced such as safety, specimen handling, streaking techniques, morphology, and media used to isolate microorganisms.
- 3313 Clinical Microbiology II (4).** Introduction to basic procedures used in modern clinical laboratories for the isolation and identification of clinically significant microorganisms. Emphasis will be placed on laboratory identification of these infectious organisms.
- 3353 Clinical Parasitology and Mycology I (3).** The disease mechanisms of blood, tissue and intestinal parasites will be studied with emphasis on general mechanisms of parasitic infections. The increasing importance of fungal infections will also be discussed.
- 3443 Clinical Chemistry I (4).** Disorders of carbohydrate, protein, amino acid and lipid metabolism will be discussed with emphasis on laboratory detection and clinical correlation of these disorders.
- 3503 Perspectives in Clinical Laboratory Science (3).** Introduction to research design for the evaluation of new methodology in Clinical Laboratory Sciences. Students will prepare a presentation of research findings.

- 4040 Comprehensive Review (1).** A comprehensive review of Medical Technology. All students take a final comprehensive examination at the end of this course. Successful completion of this course is required for graduation. Final grades will be assigned on a pass/fail basis.
- 4080 Laboratory Management and Education (2).** This course offers an overview of the management process and supervisory techniques and responsibilities commonplace in the clinical laboratory. Also covered are clinical and classroom instructional methods and evaluation strategies.
- 4163 Clinical Immunohematology II (3).** An advanced study of immunohematology theory and techniques. Emphasis will be placed on problem solving to assure safe transfusion practice.
- 4263 Clinical Hematology III (4).** A study of white blood cell abnormalities in human blood with correlations to disease processes. The laboratory portion of this course will involve development of expertise in hematologic procedures and correlation of test results with disease states.
- 4323 Clinical Microbiology III (4).** Continued development of the skills necessary to function efficiently in a microbiology laboratory. The student will be exposed to extensive bacterial identification problems as it relates to various specimen sites (respiratory, CSF, etc.). Other topics include anaerobic bacteria and mycobacteria.
- 4453 Clinical Chemistry II (4).** Mechanisms for water, electrolyte and acid/base balance and imbalance will be discussed in association with renal, cardiac and respiratory function. Clinical enzymology and endocrinology will be discussed.
- 4463 Clinical Chemistry III (2).** Heme, iron, bilirubin, and porphyrin metabolism will be discussed with an emphasis on disease processes associated with errors in these metabolic pathways and laboratory diagnosis.

REQUIRED TEXTBOOKS

Chemistry/Laboratory Techniques

Clinical Chemistry: Theory, Analysis, Correlation, Kaplan, et al., 4th edition, 2003, Mosby.
Laboratory Mathematics, Campbell & Campbell, 5th edition, 1997, Mosby.

Hematology/Hemostasis

Clinical Hematology and Fundamentals of Hemostasis, Harmening, D., 4th edition, 2002, FA Davis.

Immunology/Serology

Clinical Laboratory Immunology, Mahon, C. and Tice, D., 1st edition, 2006, Prentice-Hall.

Immunohematology

Modern Blood Banking and Transfusion Practices, Harmening, D., 5th edition, 2005, F.A. Davis.

Laboratory Management

Laboratory Management: Principles and Processes, Harmening, D., 2nd edition, 2007, DH Publishing.

Microbiology/Parasitology/Mycology

Bailey and Scott's Diagnostic Microbiology, Forbes, Weissfeld, Sahm, 12th edition, 2007, Mosby.
Medical Parasitology, Leventhal and Cheadle, 5th edition, 2002, F.A. Davis.

Urinalysis

Urinalysis & Body Fluids, Strasinger, Susan, 5th edition, 2008, F.A. Davis.

Comprehensive Review

Clinical Laboratory Science Review, Robert Harr, 3rd edition, 2006, FA Davis.

ADMISSION PROCEDURES

ADMISSION TO AUM

Students interested in pursuing the **ONLINE** option must first be admitted to AUM. Please refer to the *AUM Undergraduate Catalog* for procedures and requirements for admission to AUM. Applications are available online at: <http://www.aum.edu/uploadedfiles/ugrad.pdf>.

Transfer Students - Students transferring from another college/university must fulfill criteria for admission as outlined in the *AUM Undergraduate Catalog*. It is very important to send official transcripts from all colleges/universities previously attended at the time the application is submitted. This will permit early evaluation of transfer credit and ensure that degree requirements will be satisfied upon completion of the **ONLINE** program.

Students may transfer up to 63 semester hours from other colleges/universities to satisfy state core requirements and MT/CLS pre-professional requirements. Specific articulation information regarding the AUM MT/CLS Program is available on the AUM web page at <http://www.aum.edu/> (under the *Become a Student* link click on *Transfer Assistance*). These pre-professional requirements are also summarized on page 8 of this handbook.

Transfer students are also encouraged to discuss transfer credit with the Program Director as soon as possible. The most common delay in beginning professional phase MT/CLS courses is a deficiency in core requirements (pre-professional MT/CLS courses). Since MT/CLS **ONLINE** courses begin only once a year, a deficiency in core requirements may cause a significant delay in beginning the program. The second most common reason for a delay in beginning professional phase courses is an assumption that pre-professional MT/CLS courses taken at another college/junior college will transfer as equivalents to required courses at AUM. While this assumption is correct for most courses, there may be some courses for which this assumption is not correct. Therefore, early consultation with the Program Director is very important when considering the **ONLINE** program at AUM.

International Students - International students must meet AUM criteria for admission to the university as outlined in the *AUM Undergraduate Catalog*. International students should consult with the Program Director before selecting an agency to evaluate international education. This is to ensure that the evaluation agency selected will be acceptable to AUM and national certification agencies.

Candidates for a Second Bachelor's Degree - Candidates for a second bachelor's degree must adhere to the criteria outlined in the *AUM Undergraduate Catalog*.

ADMISSION TO THE **ONLINE** MT/CLS PROFESSIONAL PHASE CURRICULUM

Requirements for Admission - To be eligible for admission to the professional phase, prospective students must satisfy or have completed the following.

1. The prospective student must gain full acceptance to AUM.
2. The prospective student must have full-time experience as a certified clinical/medical laboratory technician or training and full-time experience in a military medical laboratory.
3. The prospective student must have made arrangements for a clinical facility to provide the clinical experience required by the program. In most cases, this clinical facility will be the

- prospective student's place of employment. (Note: AUM reserves the right to determine if the clinical facility is suitable for providing the required experience.)
4. The prospective student must have identified a person (typically a supervisor or director) at the clinical facility who will serve as their clinical facilitator. The clinical facilitator is **not** to serve as a full-time clinical instructor. Instead, the clinical facilitator should serve as a contact person between AUM and the student's facility to coordinate and oversee the clinical experience component of the student's training. The clinical facilitator should also be willing to answer questions and give other valuable assistance pertaining to the clinical experience as needed.
 5. The prospective student should have completed all pre-professional courses.
 6. The prospective student must have a cumulative GPA of 2.0 or higher on a 4.0 scale for all pre-professional phase courses.
 7. The prospective student must have a minimum grade of "C" or better in each science and math course required.
 8. The prospective student must provide the Program Director with a copy of current certification or documentation of military training.
 9. The prospective student must acknowledge their belief that they can achieve the minimal essential functions described in the Program Requirements section on page 13 of this handbook.
 10. The prospective student must have completed and submitted a formal application to the Program Director.

Process - Entry into the professional phase of the program involves a formal application by the candidate. Student handbooks containing applications are available on the AUM MT/CLS web page at <http://www.aum.edu/cls> or from the Program Director, Room 208, Moore Hall. Applications must be returned to the Director no later than the first Monday in July. Applications may be mailed to the following address.

Kyle Taylor
Auburn University Montgomery
MT/CLS Program
P.O. Box 244023
Montgomery, AL 36124-4023

The Program Director will notify each student of acceptance or non-acceptance by the last Friday in July.

Accommodation for Individuals with Disabilities

It is the policy of Auburn University Montgomery to provide reasonable accommodations for environmental and program accessibility for qualified persons with disabilities as defined by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Specifically, the Center for Disability Services (CDS) coordinates support services for students with disabilities and is an accommodation resource for faculty. Specialized services provide students with disabilities complete access to all academic and campus programs. Eligibility for services requires documentation of the disability. Disabled students or applicants for admission who need accommodations or modifications in policies, practices or procedures must register with the CDS (244-3631) and provide any requested documentation.

AFFIRMATIVE ACTION POLICY

In all aspects of the AUM MT/CLS Program, discrimination on the basis of race, color, sex, age, national origin, religion, disability, or veteran status is strictly prohibited.

COMPUTER REQUIREMENTS

Participants will need ready access to appropriate computer technology and the Internet for this **ONLINE** program. Our suggestions are:

	Minimum	Recommended
Microprocessor	Windows 98/ME - 400+ MHz	Windows XP - 800+ MHz
Monitor	VGA	SVGA
RAM	256 MB	512 MB or better
Internet Connection	Modem @ 56 Kbps	Broadband
Other	CD-ROM and printer	
Software	WordPerfect 11 or newer	
Internet Access	Unlimited access via an Internet Service Provider	
Internet Browser	Internet Explorer 6.0 or higher/Netscape Communicator 7.0 or higher	
Java and Javascript	Enable Java and Javascript for your browser	
Miscellaneous	Adobe Acrobat Reader 8.0 or newer (available at http://www.aum.edu/cls)	

PROGRAM REQUIREMENTS

Minimum essential requirements for the MT/CLS Program have been established to enable the faculty to assist students in their quest for general knowledge and mastery of the basic technical performance skills in all areas of the clinical laboratory. Specifically, students must have the cognitive abilities to master relevant content in basic science, professional and clinical courses at a level deemed appropriate by the faculty. Students must possess attributes which include integrity, responsibility, flexibility and tolerance. They must show respect for themselves and others, work independently and effectively with others and project a professional image at all times. The AUM MT/CLS Entry Level Competencies are found on pages 6 and 7 of this handbook. By applying to the AUM MT/CLS Program, the student is affirming that they can meet the following minimal essential requirements:

- Read, understand and follow directions printed in English.
- Communicate effectively in English with patients and other members of the health care team in a clear and understandable manner, both verbally and in written form.
- Display manual dexterity required to perform laboratory tasks, e.g. operation of microscopes and various instruments, performance of phlebotomy and pipetting procedures, control of laboratory equipment (inoculating loops, test tubes), and manual entry of data into computers.

- Demonstrate microscopic and macroscopic visual acuity required to differentiate structures and to perform all technical activities requiring visual skills; to judge distance and space relationships; to bring objects into focus; to see clearly at 20 inches and less; and to see a computer screen, keyboard and panel of instruments.
- Closely examine specimens, images, or printed output created by diagnostic equipment.
- Lift and carry objects with upper body muscle coordination and dexterity.
- Maneuver in the laboratory including frequent moving from point to point and around instruments and in patient care settings.
- Demonstrate touch discrimination for detecting veins to be used in phlebotomy.
- Work independently to perform patient testing safely and accurately even during stressful situations; adapt to changing environments; prioritize tasks.
- Work with blood, urine, and other biohazardous materials, as well as, chemical reagents.

Time Limitations - The **ONLINE** program is designed to be as flexible as possible allowing access to lecture materials, examinations, etc., 24 hours a day, seven days a week. While this flexibility is important, it is necessary to set time limitations to ensure that students progress toward completion of the program.

There are two tracks available for completion of the professional phase of the **ONLINE** program; a six semester/two year professional phase track (illustrated on page 8) and a nine semester/three year professional phase track (illustrated on page 9).

The two year track requires three courses per semester and the three year track requires two courses per semester. **No matter which track a student elects to follow, courses must be completed during the semester for which the student is registered for the course.** Within a given semester, students have the flexibility of completing one course at a time or completing all courses for which they are registered at the same time.

For students who begin in the two year track, there is the option at any time to change to the three year track. Once this change has been made, it will not be possible to change back to the two year track at a later time. For those who begin in the three year track, there is no option to change tracks during the program.

Concurrent Clinical Experience Site - During each content area in the **ONLINE** program, students will be expected to demonstrate competency in specific areas related to that content area. These competencies are required of all students that complete the AUM MT/CLS Program, both on-campus and **ONLINE**. These competencies are based on the *Entry Level Competencies* found on pages 6 and 7 of this handbook. In order to complete this requirement, participants in the **ONLINE** program must have a clinical facility (typically the prospective student's place of employment) that will agree to provide the necessary clinical experiences to allow them to demonstrate required competencies and a person (typically a supervisor or manager) that will agree to serve as their clinical facilitator. (Note: AUM reserves the right to determine if the clinical facility is suitable for providing the required experience.)

It is the student's responsibility to arrange for their clinical experience. Once a completed application is received, the Program Director will contact the clinical facility and the clinical

facilitator to verify their interest and evaluate their ability to provide the necessary clinical experiences required by the program. Confirmation of the clinical experience site and clinical facilitator will be provided in the student's letter of acceptance into the program. The Program Director will initiate an affiliation agreement with the clinical site.

Content Areas - The AUM MT/CLS Program is divided into major content areas in which clinical experience is a significant component. Content areas in the **ONLINE** option may include only one course or a series of courses as delineated in the table below. Please note that some courses in the **ONLINE** curriculum do not appear in any content area described below because there is no clinical experience associated with these courses. Such courses are those which provide general laboratory background (e.g., CLLS 3013), education/management theories (e.g., CLLS 4080), etc.

Courses Grouped by Content Area	Minimum Final Performance Level*
CLLS 3103 - Immunology/Serology	80%
CLLS 3203 - Urinalysis/Body Fluids	80%
CLLS 3153 - Clinical Immunohematology I	70%
CLLS 4163 - Clinical Immunohematology II	80%
CLLS 3243 - Clinical Hematology I	70%
CLLS 3253 - Clinical Hematology II	70%
CLLS 4263 - Clinical Hematology III	80%
CLLS 3353 - Clinical Mycology/Parasitology	70%
CLLS 3303 - Clinical Microbiology I	70%
CLLS 3313 - Clinical Microbiology II	70%
CLLS 4323 - Clinical Microbiology III	80%
CLLS 3443 - Clinical Chemistry I	70%
CLLS 4453 - Clinical Chemistry II	70%
CLLS 4463 - Clinical Chemistry III	80%

* minimum final performance level is explained in the Scholastic Achievement section below.

As the student begins each new content area for which clinical experience is required, the student is to meet with the clinical facilitator to schedule the times for clinical experience. **MT/CLS Program accreditation guidelines require that clinical experience time be separate from regular work duties.**

Scholastic Achievement - Learning experiences in the MT/CLS Program are sequenced and provide the **ONLINE** student with a means for progression from their current level of knowledge to that of an entry level medical technologist/clinical laboratory scientist. Curriculum objectives which delineate this progression through each content area of the program will be provided to students as they begin each area of study.

All students will be required to perform at or above the minimum final performance level listed in the table above to remain in the program. The final performance level is the final grade for the course after all components of the course have been considered. A grade falling below this minimum final performance level will require the student to withdraw from the program. The student would be eligible to reapply for admission to the next professional phase and must meet all admission requirements at the time of re-application. Students that are re-admitted to the program

may be required to demonstrate competency in MT/CLS courses previously passed by taking examinations and/or clinical experience. Any required demonstration of competency will be delineated prior to re-admission. Students are allowed to enter the professional phase of the program a maximum of two times.

General course objectives and requirements for each MT/CLS course will be presented at the beginning of the course materials. Desired learning outcomes will be given throughout each course. Achievement of desired learning outcomes will be assessed by a variety of techniques including, but not limited to:

- outside assignments (including Internet searches)
- case studies
- objective and essay examinations
- final comprehensive examinations at the end of each content area

Grading Scales Employed During MT/CLS Program			
Courses with NO Clinical Experience		Courses with Clinical Experience	
100 - 90	A	100 - 94	A
89 - 80	B	93 - 87	B
79 - 70	C	86 - 80	C

For the clinical experience portion of the **ONLINE** curriculum, students will work under the supervision of a clinical facilitator agreed upon by the clinical facility and AUM. The clinical facilitator will **not** serve as a full-time clinical instructor. The clinical facilitator will be available to give valuable assistance as needed and to evaluate required competencies.

Achievement in clinical experience courses is evaluated in two areas; **professional attitudes** (i.e., interpersonal relations, dependability, stability, projecting a professional image) and **technical performance**.

Professional attitudes are considered a significant component of a student's training and are evaluated during clinical experience by the *Professional Development Evaluation*. This form is designed to evaluate the development of the student's professional attitudes and responsibilities.

It is the student's responsibility to print the *Professional Development Evaluation* and make it available to the clinical facilitator at the appropriate time. Once the evaluation has been completed, it is the student's responsibility to send the evaluation to the Program Director.

This evaluation should be completed at the end of the clinical experience for each content area. The results will be included in the final grade determination for the final course of that content area. Each student is expected to achieve an 85% performance level on this evaluation.

The student's **technical performance** during the clinical experience for each course will be evaluated using the *Clinical Experience Checklist*. The checklist provides documentation that the student has attained the level of competency required by the program.

It is the student's responsibility to print the checklist and make it available to the facilitator at the appropriate time. Once the checklist has been completed it should be reviewed by the student and the clinical facilitator for completeness. It is the student's responsibility to return the checklist to the Program Director.

The Clinical Experience Checklist is divided into two sections. The Concepts/Basic Skills section will require ongoing evaluation during the time spent in the section/department. Competency in this section will be determined at the end of the clinical experience when, in the professional opinion/judgement of the clinical facilitator, the concepts and basic skills on this checklist have been completed at an 85% level or higher. An 85% competency level is defined as explaining **each** concept or performing **each** basic skill at an 85% level. This is **not** to be interpreted as competency being equated to completion of 85% of the concepts/basic skills listed in this section of the checklist. Failure to complete any one concept/basic skill at the required level of 85% or higher will result in failure of this section of clinical experience.

The Tasks/Test Procedure section of the checklist contains specific functions required by the program. The number beside each task/test procedure is the number of times the specific task/test procedure must be completed. The "Required Level of Competency" is the level of accuracy that must be achieved with **each** repetition. This is **not** to be interpreted as competency being equated to successfully completing a certain percentage of the required number of repetitions for each task/test procedure. A space has been provided in this section of the checklist to record, perhaps with tic marks, the number of times the specified task/test procedure has been successfully completed. The student is considered competent when the indicated number of tasks/test procedures have been completed, **each** at the indicated level of accuracy. Failure to complete any one task/test procedure at the required level of 85% or higher will result in failure of this section of clinical experience.

In the event that competency could not be obtained for a particular concept/basic skill or task/test procedure through no fault of the clinical site or student, indication of this will be noted on the checklist by the clinical facilitator along with a brief explanation. If this situation arises, failure to complete the required competency will not be counted against the student.

Grades earned on the *Professional Development Evaluation* and the *Clinical Experience Checklist* will be included in the final grade determination for the last/only course of each content area. For example, referring to the table on page 15, the Immunology/Serology and Urinalysis/Body Fluids content areas in the **ONLINE** curriculum consist of only one course. Therefore, the *Professional Development Evaluation* and the *Clinical Experience Checklist* grades will be included in the final grade determination for these courses. In contrast consider the hematology content area. The *Professional Development Evaluation* and the *Clinical Experience Checklist* in this content area will be included only in the grade for Clinical Hematology III, the final course for this content area. The *Professional Development Evaluation* and the *Clinical Experience Checklist* will be available in the course materials for all three Clinical Hematology courses and **MUST** be completed by the end of Clinical Hematology III. For content areas where the clinical experience falls over more than one semester, the student is strongly advised to complete the checklist for that content area as soon as possible. This will prevent unexpected circumstances from causing the student not to complete their clinical experience on time.

SUMMATION OF ACADEMIC POLICY

As an accredited MT/CLS Program, the AUM MT/CLS Program adheres to the standards of NAACLS. Within these standards, the MT/CLS Program has the freedom and ultimate responsibility for the selection and evaluation of its students, the design, implementation, and evaluation of its curriculum, and the determination of who should be awarded a certificate. Admission and retention decisions are based not only on prior satisfactory academic achievement but also on non-academic factors which serve to ensure that the candidate can complete all required essential functions of the academic program.

DISMISSAL POLICY

Students may be dismissed from the MT/CLS Program for failure to meet the program requirements as stated in this student handbook.

STUDENT GRIEVANCE PROCEDURE

It is the policy of the AUM MT/CLS Program to provide its students with a mechanism for review of student grievances. The following procedure is for use within the Division of Clinical Laboratory Sciences. If an acceptable resolution to the grievance cannot be reached within the Division, the student should proceed through the University grievance procedures described in the AUMANAC.

Procedure - A student who has a grievance should proceed through the following steps for resolution of their grievance.

STEP 1 In the case of an academic grievance, the student should discuss their concern with the faculty member responsible for the course in which the problem occurred.

In the case of non-acceptance or dismissal, the student should discuss their concern with the Program Director.

In all cases, this discussion must take place within one week from the time the student first becomes aware of the event(s) giving rise to the grievance.

STEP 2 If discussions in Step 1 fail to resolve the grievance, the grievance must be reduced to writing, along with justifications and remedy sought, and submitted to the Program Director within one week of the initial discussions in Step 1. The grievance, and any supporting documentation, must present all of the facts the student wishes to make known concerning the matter.

In the event that the grievance is with the Program Director, the written grievance should be submitted to the Biology Department Chair. All time limitations will remain in force. The Program Director/Biology Chair will maintain impartiality throughout steps 2 and 3.

STEP 3 The Program Director/Biology Chair will organize a meeting between the student and faculty member in order to seek a resolution to the grievance. If no resolution is found and the student wishes to continue the grievance process, the Program Director/Biology Chair will form a departmental grievance committee and provide the committee with all relevant materials. The committee will be made up of all MT/CLS faculty not already involved in the process, two School of Sciences faculty and one student representative. Three School of Sciences faculty will serve on the committee if no MT/CLS faculty are available. After review of all materials, the committee will recommend a resolution to the Program Director/Biology Chair. The Program Director/Biology Chair will review the committee's recommendation and render their decision within one week of receiving the recommendation from the committee and notify the student, and all other parties involved, in writing of the decision.

CONTINUATION If the grievance is not resolved at Step 3, the student may continue the University grievance described in the AUMANAC.

Program Costs

Auburn University Montgomery offers a **Flat Rate Tuition Plan** for those who apply and are accepted into the professional phase of the **ONLINE** Medical Technology Program. As described elsewhere, a two-year track and a three-year track are available. In order to be eligible for the **Flat Rate Tuition Plan**, students must select the track they wish to follow during the application process and enroll in all courses designated for that track. Those who are not enrolled in the complete program must pay the current standard fees charged by AUM. The **Flat Rate Tuition Plan** for each track is described below. The rates are subject to change by order of the Auburn University Board of Trustees in their annual June meeting. Any increases in tuition will result in an increase in the flat rate tuition and will be effective in the fall semester of 2008.

Two-Year Track Flat Rate Tuition Plan

The two-year track consists of six consecutive semesters of online medical technology courses. Students in this track will take three courses per semester totaling between 8 and 11 hours per semester. The "flat rate" tuition will remain constant at **\$1746.08 per semester**. This rate includes tuition, technology fees, administrative fees, and internet connection fees. Books and malpractice insurance are **NOT** included in the Flat Rate Tuition Plan. The total cost for the two-year track is **\$10,476.48 (\$1746.08 per semester for 6 semesters)**. Considering the 57 semester hours taken during the two-year program, **the cost per semester hour is \$ 183.79**. Please note that this cost per semester hour includes all fees mentioned above.

Three-Year Track Flat Rate Tuition Plan

The three-year track consists of nine consecutive semesters of online medical technology courses. Students in this track will take two courses per semester totaling between 5 and 8 hours per semester. The "flat rate" tuition will remain constant at **\$ 1214.08 per semester**. This rate includes tuition, technology fees, administrative fees, and internet connection fees. Books and malpractice insurance are **NOT** included in the Flat Rate Tuition Plan. The total cost for the three-year track is \$10,926.72 (\$1214.08 per semester for 9 semesters). Considering the 57 semester hours taken during the three-year program, the cost per semester is \$191.70.

Important Notes

- The costs described above are for the 2008/2009 academic year. Any percentage increase in tuition approved by the Board of Trustees for the 2009/2010 academic year will also be reflected in the **Flat Rate Tuition Plan**.
- **Course Cancellation Policy---Payment of Registration Expenses**
The Course Cancellation Policy states that: Student's classes for a particular term will be cancelled if charges for the term are not paid by the specified date. The cancellation process will occur prior to the start of the term and a second cancellation date will occur during the first week of the term. The specified dates for cancellation will be posted on Webster. It is the student's responsibility to be aware of these dates.

Miscellaneous Costs

- Books \$800.00 (estimated - varies depending on source of purchase)
- Malpractice Insurance \$15.00 per year (varies depending on number of participants)
- Graduation \$55.00

Withdrawal/Refund Policy

Course resignation/withdrawal occurs when a student decides to withdraw from all courses for which he or she is registered. If a student resigns prior to the day identified as the fifth day of classes, the courses will be deleted from the transcript. Resignation after classes have started on the sixth day will result in a student receiving a grade of W (Withdrawal). The deadline for withdrawing/resigning from a course is identified on the student registration system (WEBSTER). This date is specified in the academic calendar. When a student, as a result of exceptional or emergency circumstances, is forced to withdraw from a course after the withdrawal date for the term, the student may petition, in writing, the Dean of the school in which the course is offered. A student may not withdraw from a course after the deadline if he or she is failing. The Dean will contact the student's instructor to determine the student's scholastic standing at the time of the request to withdraw.

Students dropping/resigning before the first day of classes are eligible for a refund/waiver of all tuition and fees. Students dropping/resigning during the refund period after classes begin will be eligible for a partial refund/waiver. The eligible percentage of refund/waiver is dependent on the day of drop/resignation.

CERTIFICATION EXAMINATION APPLICATION

There are two certifying agencies for Medical Technologists/Clinical Laboratory Scientists; the American Society for Clinical Pathology (ASCP) which offers certification as Medical Technologists and the National Credentialing Agency for Medical Laboratory Personnel (NCA) which offers certification as Clinical Laboratory Scientists. **While a degree is not contingent upon passing an external certification examination**, most employers in the clinical laboratory field require certification. Many employers will accept either certification while some employers will accept only one. Each certifying agency requires candidates to make formal application for their examination.

ASCP - Application for the ASCP certification examination should be completed online during the first week in July during the year in which you plan to graduate. ASCP Board of Registry is accredited by the American National Standards Institute (ANSI). The application can be found at <http://www.ascp.org/bor/application>. You will receive specific information about completing the application from the Program Director prior to time for registration. Within 10 business days following receipt of the application, ASCP will begin processing your application. Upon determination of examination eligibility, you will receive an admission letter with a three-month window to take the examination, beginning the first day of the following month.

NCA - Application for the NCA certification examination is obtained online at <http://www.nca-info.org>. NCA is a member of the National Organization for Competency Assurance (NOCA) and its examination programs are accredited by the National Commission for Certifying Agencies (NCCA). A paper application should be completed and submitted along with appropriate fee. The applicant will receive confirmation of eligibility within six weeks. The confirmation is valid for 90 days. The confirmation material will contain information on where to schedule an appointment for the examination. Appointments can be scheduled online. The appointment must be scheduled within the 90 day window. Information on this process can be obtained from the Program Director.

Students are required to complete their NAACLS accredited training program as well as all academic requirements for graduation before they will be permitted to sit for either of these examinations. Once the degree has been posted on the student's transcript, the student is responsible for requesting an **official** transcript be sent from the AUM Records Office **directly** to the appropriate certification agency. Please note that examination scores will not be released by ASCP or NCA until these agencies receive an **official** transcript with the degree posted.

Preparation for Certification Examinations

The last course you will take prior to graduation is CLLS 4040 - Comprehensive Review. This course should only be taken after the other courses for the Summer Semester are completed. This course will provide a comprehensive review of the major disciplines in Medical Technology. This course will begin with a comprehensive pre-test which is designed to be very similar in format to the ASCP and NCA certification examinations. This test will be immediately graded and made available to you for review. The intent is to help each student determine any particular areas on which they should concentrate during the review.

At the conclusion of the review, a final comprehensive examination will be taken. The minimum passing score on the final comprehensive examination is 70%. For those that score below 70%, additional study is indicated. Students will have two additional chances to pass this examination. **Successful completion of this course is required for graduation.** In the event that a student does not score above 70% after three attempts, the student will not pass the course and be required to register for this course again the following semester. Final grades will be assigned on a pass/fail basis.

IMPORTANT MISCELLANEOUS INFORMATION

Student Educational Records Policy - As stated in the *AUM Undergraduate Catalog*.

“Auburn University Montgomery recognizes that the privacy and maintenance of student educational records is necessary and vital to assist the student’s education. The University recognizes its obligation to exercise discretion in recording and disseminating information about students to ensure that their rights of privacy are maintained. The University will furnish annual notification to students of their right to inspect and review their educational records, and of their right to request amendment of education records considered by them to be inaccurate or misleading or that violate privacy or other rights. A student has the right to a hearing should the university decline to amend such records.”

Additional information regarding educational records may be found on the university’s website at www.aum.edu/uploadedfiles/FERPA.pdf

Graduation - Students are responsible for applying for graduation and all other requirements pertaining to graduation as stipulated in the *AUM Undergraduate Catalog*.

Malpractice Insurance- Malpractice insurance is required for senior-level students. This insurance is available through AUM at a reduced cost. Students are required to purchase \$1,000,000/ \$3,000,000 of malpractice insurance. This amount pays up to \$1,000,000 for each claim up to a total of \$3,000,000 in any one year. The Program Director will enroll MT/CLS students in the malpractice insurance plan during their senior year and the cost will be billed to the student’s AUM account. This malpractice insurance is only for clinical experience training and will expire upon graduation.

Laboratory Safety Training - Each clinical affiliate will provide safety/universal precaution instruction prior to/at the beginning of clinical experience. Documentation of this instruction will be retained at each clinical site. Students must adhere to the safety/universal precaution guidelines of the facility to which they are assigned.

HEALTH/INSURANCE REQUIREMENTS FOR CLINICAL EXPERIENCE

The MT/CLS program is required to have a method of determining the health status of students prior to entering clinical experience. The following requirements must be satisfied prior to being accepted into the **ONLINE** program.

- **Health Insurance** - All students must provide evidence of health insurance. A copy of this proof will be kept in the student’s file at AUM.
- **Physical Examination** - Each student will be required to have a physical examination completed by a licensed physician/nurse practitioner prior to beginning the **ONLINE** program. A physical examination form will included with the application. The results of this physical examination will be kept in the student’s file at AUM.

- **Immunizations**- ***All*** immunizations must be current before beginning the **ONLINE** program. Documentation of each student's immunization record (including dates) must be provided to the Program Director prior to beginning the program. These immunizations must include immunization to Hepatitis B. Hepatitis B immunization is an OSHA requirement for all health care workers. If Hepatitis B immunizations are not complete, they must be in progress by the start of the program. If the student declines to be immunized for Hepatitis B, a declination form must be signed and will be kept in the student's folder which absolves Auburn University Montgomery and the clinical facility of any responsibility relating to contracting Hepatitis B. An immunization record form will be provided with the application. All immunization records will be placed in the student's file at AUM.
- **TB Skin Test** - Proof of a current TB Skin Test must be provided prior to beginning the **ONLINE** program. This record will be placed in the student's file at AUM.

Students are responsible for the cost of the physical examination and any immunizations.

Medical Treatment - Students injured while in clinical experience will be evaluated and treated in accordance with the affiliate's policy for employees. In addition, the student must follow the policies and procedures concerning injuries/incidents at that facility. Financial responsibility for emergency and follow-up care belongs to the student. An Incident Report Form describing the injury must be submitted to the MT/CLS Program Director within 2 days of occurrence. Incident Report Forms can be found on each WebCT course page.