

Old Dominion University
College of Health Sciences

SCHOOL OF MEDICAL DIAGNOSTIC & TRANSLATIONAL
SCIENCES

Medical Laboratory Science



Clinical Practicum Student Handbook

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Old Dominion University

Medical Laboratory Science Program

Summer 2020 Disclaimer

At the time this handbook undergoes annual summer updates, the University, the affiliated clinical sites and the community are affected by the COVID-19 pandemic. While the included policies and other materials are written with the best interest and wellbeing of the students in mind, they are superseded by the rulings provided by the state, individual healthcare institutions and Old Dominion University administration. The Medical Laboratory Science Program collaborates with the affiliated sites to provide best clinical experience under circumstances and secure timely graduation. However, the Program cannot guarantee clinical placement for everyone in summer/fall 2020 if the hospitals affected by the pandemic are not able to facilitate them. Under special circumstances faculty may allow shorter rotations if all competencies are completed (meaning the content reflects credit due). We can assure that every student who successfully completes the MLS coursework, is eligible for the national certification MLS(ASCP) exam.

Program Mission Statement

The mission of the Medical Laboratory Science Program is to provide an excellent educational program embodying a curriculum that prepares students to become competent professionals who are committed to providing quality patient care, serving the community, and advancing the body of knowledge in clinical laboratory science.

Table of Contents

Summer 2020 Disclaimer.....	2
Program Mission Statement.....	2
Program Goals.....	6
Graduate Competencies.....	6
Purpose of the Clinical Practicum:.....	7
Student Expectations:.....	8
Clinical Instructors:.....	8
Service Work Policy	9
Clinical Liaisons and Instructors	10
Bon Secours - Maryview Medical Center	10
Bon Secours - Mary Immaculate Hospital	10
Bon Secours - DePaul Medical Center	10
Chesapeake Regional Medical Center	10
Children’s Hospital of the King’s Daughters, Inc	11
Naval Medical Center Portsmouth	11
Riverside Regional Medical Center	12
Riverside Regional Medical Center - Walter Reed (Gloucester)	12
Riverside Doctor’s Memorial Hospital (Williamsburg)	12
Sentara Laboratory Services	13
Sentara Careplex Hospital	13
Sentara Greenbrier	13
Sentara Leigh Hospital	13
Sentara Norfolk General Hospital	13
Sentara Obici Hospital	14
Sentara Princess Anne Hospital	14
Sentara Virginia Beach Hospital/Sentara Independence	14
Sentara Williamsburg Regional Medical Center	15
Southampton Memorial Hospital (Franklin)	15
Veterans Administration Medical Center Hampton	15
Veterans Administration Medical Center Richmond	15
Note on Medical Laboratory Science Program Policies:.....	16
Criminal Background Check.....	17

Health Records	20
Hepatitis B Vaccine Declination Form	21
Emergency Health Care Services Responsibility	22
Review of Didactic Course Materials	23
Color Blind Testing.....	23
Professionalism	23
Interprofessional Education (IPE).....	23
Email Etiquette.....	23
Cell Phone Use and Storage	23
Dress Code and Grooming.....	24
ROTATION SCHEDULES AND ASSIGNMENTS	24
Attendance Policies	26
Safety	27
OSHA Standard.....	27
Clinical Site Standard Operating Procedures (SOPs).....	27
Hepatitis B Vaccine.....	27
Exposure Incidents.....	27
Standards for Privacy	28
INSTRUCTOR EVALUATION OF STUDENT SKILLS	30
Clinical Practicum Grades.....	31
Action Plans	32
Failure Policy:	32
STUDENT EVALUATION OF CLINICAL INSTRUCTORS & PRACTICUM PROGRAM	33
Student Evaluation of Clinical Instructors:.....	34
Student Evaluation of the Clinical Practicum/Rotation Program:.....	34
REQUIREMENTS FOR GRADUATION	35
Appendix A	37
PROGRAM POLICIES	38
Program Policies Acknowledgement.....	45
CLINICAL COURSE POLICIES	46
Clinical Course Policies Acknowledgement	51
Appendix B	52
CLINICAL HEMATOLOGY PRACTICUM	53

MLS 404 Clinical Hematology Practicum Competency Task List	59
CLINICAL MICROBIOLOGY PRACTICUM	64
MLS 406 Clinical Microbiology Practicum Competency Task List	73
CLINICAL BIOCHEMISTRY PRACTICUM	80
MLS 452 Clinical Biochemistry Practicum Competency Task List	88
CLINICAL IMMUNOHEMATOLOGY PRACTICUM.....	91
MLS 454 Clinical Blood Bank Practicum Competency Task List	102
CLINICAL URINALYSIS OBJECTIVES.....	104
Urinalysis Checklist.....	107
Urinalysis Rotation Study Questions and Case Studies	109
CLINICAL IMMUNOLOGY/SEROLOGY OBJECTIVES	110
Immunology/Serology Practicum Checklist.....	113
Immunology/Serology Rotation Study Questions and Case Studies	115
Appendix C	116
MLS Clinical Practicum Assignments	117
CLINICAL TIME AND ATTENDANCE LOG.....	118
MDTS Safety Check-Off.....	120
ODU MLS Program Safety Check-off Signature Sheet.....	123
COLLEGE OF HEALTH SCIENCES INCIDENT REPORT	124
ODU Blood Borne Pathogens Pamphlet	127
CDC Recommendations for Immediate Postexposure Interventions.....	129
After-Hours Assistance (Health Services).....	131
Affective Behavior/Professional Characteristics Policy	132
Affective Behavior/Professional Characteristics Evaluation Guidelines	134
Clinical Practicum Grade Form	137
Interprofessional Interaction Documentation	138
Student Oral Presentations Evaluation Form	139
CLINICAL ROTATION ACTION PLAN FORM	140
Student Evaluation of Clinical Instructors.....	141
Student Evaluation of the Clinical Practicum/Rotation Program.....	142
Student Records Release Authorization Form	143
Alumni Registration Form	144

Old Dominion University

Medical Laboratory Science Program

Program Goals

- To provide students with a model educational system based upon scientific and technological excellence.
- To provide a high-quality academic program and clinical learning experiences that espouses commitment to quality patient care and concern for the dignity and rights of all patients.
- To provide opportunities for faculty and the professional community to work with students to further the body of knowledge in the profession through research and scholarship.
- To provide qualified and competent practitioners and future leaders, within the educational framework, in order to ensure the integrity of the profession, promote service to the community, and respond to health care issues and needs.

Graduate Competencies

- Develops and performs specimen collection, processing, and evaluation, adapting systems when corrective actions are indicated.
- Performs analytical tests on body fluids, cells, and other substances.
- Correlates laboratory data, recognizes problems, and selects appropriate corrective actions.
- Utilizes quality control and quality assurance measures to evaluate the validity and reliability of laboratory test results and services provided.
- Evaluates new techniques, instruments, and methodologies.
- Applies knowledge of applicable regulations that govern laboratory operations so that compliance is maintained.
- Demonstrates professional conduct and interpersonal skills with patients, laboratory personnel, and other health care professionals.
- Exercises principles of financial, operations, information, and human resource management.
- Applies principles of educational methodology in the development and delivery of instructional materials to students, health care professionals, and patients.
- Recognizes the importance of continuing education for growth and the maintenance of professional competence.
- Applies knowledge of research design in evaluating published studies.

Purpose of the Clinical Practicum:

The Clinical Practicum component of the Medical Laboratory Science curriculum allows the student to gain valuable practical experience in a clinical laboratory setting. Students are expected to be able to build on the foundation of knowledge, skills and values acquired from the university classroom and laboratory courses as they master challenges provided in clinical practice. The practice experiences will allow the student the opportunity to display professional characteristics, gain confidence, and develop proficiency in both: technical and theoretical laboratory practice skills.

According to the Standards for Accredited Programs for Medical Laboratory Scientist established by the National Accrediting Agency for Clinical Laboratory Science (NAACLS, 2020)*, a Medical Laboratory Scientist/Medical Technologist Program at the baccalaureate level should prepare students who are able to demonstrate entry-level competencies as described below:

“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, Immunohematology/Transfusion medicine, 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:

A. Application of safety and governmental regulations and standards as applied to clinical laboratory science;

B. Principles and practices of professional conduct and the significance of continuing professional development;

C. Communications sufficient to serve the needs of patients, the public and members of the health care team;

D. Principles and practices of administration and supervision as applied to clinical laboratory science;

E. Educational methodologies and terminology sufficient to train/educate users and providers of laboratory services;

F. Principles and practices of clinical study design, implementation and dissemination of results.”

*National Accrediting Agency for Clinical Laboratory Sciences (May 2020). NAACLS Standards for Accredited and Approved Programs (MLS Unique Standards), p. 10.

Student Expectations:

The practical experiences that students gain while in clinical practicum courses should prepare students to work in a clinical laboratory setting as entry-level Medical Technologist/Medical Laboratory Scientist in areas of Clinical Chemistry, Hematology, Blood Bank, Microbiology, Serology/Immunology, Urinalysis, and Phlebotomy. The experiences are expected to lead to standard entry-level competence.

Once entry-level competence is demonstrated, work in the various clinical disciplines may be performed under the instructor's supervision. Student learning experiences however, are not substituted for the work of the staff. Service work performed by students outside of academic hours is not required or permitted to fulfill practicum requirements. This is verbalized in the Service Work Policy provided on the following page and communicated to the affiliated clinical sites' Liaisons to meet the requirements stated by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) in Standards IV.A.1.j (Students – Publications and Disclosures) and V E-F (Operational Policies, Fair Practices).

Clinical Instructors:

The clinical instructors at the clinical affiliate sites are experienced Medical Technologists/Medical Laboratory Scientists who have a special dedication to the profession and to students in particular.

The next pages provide contact information for clinical instructors at sites affiliated with ODU Medical Laboratory Science Program at the time this handbook is updated. Note that not all affiliated sites accept students every year and that changes in instructor responsibilities may be expected. ODU MLS Program Education Coordinator provides students with proper contact information prior the practicum.

Old Dominion University
Medical Laboratory Science Program
Service Work Policy

Background:

The National Accrediting Agency for Clinical Laboratory Science (NAACLS) states that “*policies and processes by which students may perform service work must be published*” (Standard IV.A.1) and that “*Service work by students in clinical settings outside of academic hours must be noncompulsory*” (Standard V.E-F).

Additionally, the Compliance Guide for the Standards states: “*Service work by students (noncompulsory outside of class hours, never used as staff replacement) should be addressed, including how and when this information is distributed to students, faculty, and clinical staff and/or clinical sites*”.

At ODU, student applicants to the Program sign the acknowledgement of MLS Program Policies prior interviews. Following the decision of the ODU MLS Clinical Advisory Committee on November 30, 2018, the statement provided below must be communicated not only to the students but also to the liaisons of the clinical sites affiliated with the Program. The liaisons will acknowledge the receipt of the policy via email sent to program director at bkraj@odu.edu .

The acknowledgement will be valid for the duration of the affiliation agreement or until the clinical liaison for the organization changes. Program Director will keep the signed acknowledgements on file.

Policy Statement:

Student learning experiences in clinical practicum courses are performed under the supervision of a preceptor. Student learning experiences, however, are not substituted for the work of the staff. Service work performed by students outside of academic hours is not required or permitted to fulfill practicum requirements”.

Acknowledged by: _____ (Liaison’s Name, Printed)

Signature: _____

Organization Name: _____

Date: _____

Old Dominion University
Medical Laboratory Science Program

Clinical Liaisons and Instructors

Liaison/ Instructor	Department	Contact
Bon Secours - Maryview Medical Center		
Rusty Williams	Lab Director (and Phlebotomy)	Rusty_Williams@bshsi.org 757-398-2454
Terry Allen	ODU Liaison / Coordinator for all Bon Secours locations	terry_allen@bshsi.org 757-398-2286
Phyllis Ramirez	Hematology/Chemistry	Phyllis_Ramirez@bshsi.org 757-398-2088
Deborah Moore	Microbiology	Deborah_Moore@bshsi.org 757-398-2256
Bon Secours - Mary Immaculate Hospital		
Linda McClenney	Site Coordinator	Linda_McClenney@bshsi.org 757-886-6463
Mary Lacombe	Core Lab Supervisor/ Hematology	Mary_LaCombe@bshsi.org 757-886-6032
Mary Lacombe	Core Lab Supervisor/ Chemistry	Mary_LaCombe@bshsi.org 757-886-6032
Linda McClenney	Phlebotomy	Linda_McClenney@bshsi.org
Bon Secours - DePaul Medical Center		
Rita Elson	Laboratory Manager	Rita_Elson@bshsi.org 757-889-4110
Tulay Ackmandor Inac	Core Lab Supervisor	Tulay_AkmandorInac@bshsi.org 757-889-4112
Position not filled	Hematology/Chemistry/ Coag/UA	757- 889-5141
TJ High	Blood Bank	temesia_high@bshsi.org 889-4599 or 398-2005
Chesapeake Regional Medical Center		
Cheryl Paige	Laboratory Manager	cheryl.paige@chesapeakeregional.com 757-312-6118
Kathy Cartwright	ODU Liaison/ Education Coordinator	kathy.cartwright@chesapeakeregional.com 757-312-6118 x 2234 (prev.1335)
David Verdes	Hematology/Chemistry	david.verdes@chesapeakeregional.com 757-312-6118 x1018
Barbara Shields	Microbiology	barbara.shields@chesapeakeregional.com 757-312-3028
Kathy Cartwright	Blood Bank	kathy.cartwright@chesapeakeregional.com 757-312-6118 x1335

Merrily Allen-Jackson	Phlebotomy/PSAT	Merrily.Allen-Jackson@chesapeakearegional.com 757-312-6127
Children's Hospital of the King's Daughters, Inc		
Mary Shields	ODU Liaison/Education Coordinator	mary.shields@chkd.org 757-668-7602
Aurora Maxfield	Hematology/Hemostasis/Urinalysis	aurora.maxfield@chkd.org 757-668-9708
Sandra Nixon	Blood Bank	Sandra.Nixon@chkd.org 757-668-9711
Mary-Margaret Fisher	Microbiology/Virology/Serology/Molecular Diagnostics Manager	Mary-Margaret.Fisher@chkd.org 757-668-7267
Vacant	Chemistry	757-668-9745
Alex Le	Core Lab Operations Manager	Alexander.Le@chkd.org 757-668-7485
Naval Medical Center Portsmouth		
CDR Peter Carbone	Department Head	Carbone, Peter N CDR USN NAVHOSP PORS VA (USA) peter.n.carbone.mil@mail.mil 757-953-1689
LT Matthew A Brooks	Lab Manager and Assistant Department Head	Brooks, Matthew A LT USN NAVHOSP PORS VA (USA) matthew.a.brooks22.mil@mail.mil 757-953-1674
LCDR Erik Shanahan	Medical Director	Shanahan, Erik E LCDR USN USMC MARFORPAC (USA) erik.e.shanahan.mil@mail.mil 757-953-1700
Cynthia Sivells	ODU Liaison	Sivells, Cynthia M CIV DFAS (USA) cynthia.m.sivells.civ@mail.mil 757-953-1705
Cynthia Sivells	Phlebotomy	Reese, Brian M CIV USN NAVHOSP PORS VA (USA) brian.m.reese2.civ@mail.mil 757-953-3442 Sivells, Cynthia M CIV DFAS (USA) cynthia.m.sivells.civ@mail.mil 757-953-1705
Cynthia Sivells	Hematology	Sivells, Cynthia M CIV DFAS (USA) cynthia.m.sivells.civ@mail.mil 757-953-1705
Cristina Ruffy and Mittal Patel	Flow Cytometry	Patel, Mittal H CIV USN NAVHOSP PORS VA (USA) mittal.h.patel.civ@mail.mil Ruffy, Cristina F CIV USN NAVHOSP PORS VA (US) cristina.f.ruffy.civ@mail.mil 757-953-7623

LT Fae Ramirez LT Alisa Agey LT Rebecca Jones	Blood Bank	Ramirez, Fae Lisa LT USN NAVHOSP PORS VA (USA) fae.l.ramirez.mil@mail.mil 757-953-1726 Agey, Alisa LT USN NAVHOSP PORS VA (USA) alisa.agey.mil@mail.mil 757-953-1551 Jones, Rebecca L LT USN NAVHOSP PORS VA (USA) rebecca.l.jones1.mil@mail.mil 757-953-1738
Cynthia Sivells	Chemistry	Sivells, Cynthia M CIV DFAS (USA) cynthia.m.sivells.civ@mail.mil 757-953-1705
ENS Eldee Demegillo Ruben Ayala	Microbiology	Demegillo, Eldee T ENS USN NAVHOSP PORS VA (USA) eldee.t.demegillo.mil@mail.mil 757-953-1737 Ayala, Ruben CIV USN NAVHOSP PORS VA (USA) ruben.ayala8.civ@mail.mil 757-953-1750
Riverside Regional Medical Center		
Lynn Onesty	Laboratory Director	Lynn.Onesty@rivhs.com
Gail Maxey	ODU Liaison for all Riverside locations/ Core Lab Manager	Gail.maxey@rivhs.com 757-594-3176
Gail Maxey	Hematology	Gail.maxey@rivhs.com 757-594-2855
Gail Maxey	Chemistry	Gail.maxey@rivhs.com 757-594-2855
Beth Ellington	Microbiology	Beth.Ellington@rivhs.com 757-594-2857
Vickie Berry Andrea Damin	Blood Bank	vickie.berry@rivhs.com andrea.damin@rivhs.com 757-594-3035
Thomas Richardson "Loopy"	Support Services Supervisor/ Phlebotomy	Thomas.Richardson@rivhs.com 757-594-3495
Riverside Regional Medical Center - Walter Reed (Gloucester)		
Donna Indzeris	Laboratory Director	Donna.indzeris@rivhs.com (804) 695-8563 (Direct Line) (804) 693-8870 (Lab)
Riverside Doctor's Memorial Hospital (Williamsburg)		
Margaret Goodman	Blood Bank	Margaret.Goodman@rivhs.com 757 585-2089
Riverside Shore Memorial Hospital		
Kristie Finney	Education Coordinator	Kristie.Finney@rivhs.com 757-302-2261
Susan Sparrow	Chemistry	susan.sparrow@rivhs.com 757-302-2269
Sara Reiter	Microbiology	sara.reiter@rivhs.com

		757-302-2263
Kathy Brown	Hematology	Katherine.brown@rivhs.com 757-302-2266
June Crockett	Blood Bank	june.crockett@rivhs.com 757-302-2264
Sentara Laboratory Services		
Jessica Linhardt	ODU Liaison for all Sentara locations	JDREYNOL@sentara.com 757-388-2544
Sentara Albemarle Medical Center		
Julie Allard	Clinical Liaison/Manager	JAALLARD@sentara.com 252-384-4624
Sabrina Butts	Chemistry	Sxbutts@sentara.com 252-384-4630
Steve Comoroski	Hematology/Coag	sxcomoro@sentara.com 252-384-4630
Liza Barlow	Transfusion Services	lxbarlow@sentara.com 252-384-4630
Mary Banks	Urinalysis	mxbanks@sentara.com 252-384-4630
Sentara Careplex Hospital		
Angie M. Swogger	Lab Manager	AMSWOGG2@sentara.com 757-736-0111; 475-4949 (pager)
Terri Scott/ Sharon Schneider	Blood Bank	tascott3@sentara.com 757-736-0146 spschnei@sentara.com 757-736-0100
Sharon Schneider	Hematology/Coag	spschnei@sentara.com 757-736-0100
Kelsey Wealand	Chemistry	KAWEALAN@sentara.com 757-736-0100
Jason Nagy	Microbiology/ Urinalysis	JPNAGY@sentara.com 757-736-0100
Michelle Spencer	Phlebotomy	MLSPENCE@sentara.com 757-736-0115;
Sentara Greenbrier		
Marshala Dunston	Phlebotomy	mkdunsto@sentara.com 757-252-9130
Sentara Leigh Hospital		
Audra Parmiter	Clinical Lab Manager	AMPARMIT@sentara.com 757-261-6657
Ryan Montgomery	Clinical Point of Contact for all dept.	RDMONTGO@sentara.com 757-261-6650
Carol Dewey	Phlebotomy	clsaunde@sentara.com SLH – 757-261-4588; pgr 757-475-2149
Sentara Norfolk General Hospital		
Theresa Whitfield	Core Lab Clinical Point of Contact	TLWHITFI@sentara.com imrevita@sentara.com

Irene Revita (2 nd Shift)		757-388-1972
Jovi Sambo Luz Thomas (2 nd Shift)	Hematology	issambo@sentara.com lyicban@sentara.com 757-388-3164
Archana Patel Holly Trenchard	Transfusion Services	arpatel1@sentara.com hntrench@sentara.com 757-388-2445
Ethel Austria Rob Roberts (2 nd shift)	Chemistry	evaustri@sentara.com 757-388-4365
Debra Vaughn (manager)	Microbiology	dvmcmaha@sentara.com 757-388-1589
Carol Dewey	Phlebotomy	clsaunde@sentara.com SNGH – 757-388-0099 pgr 757-475-2149
Ethel Austria	Urinalysis	evaustri@sentara.com 757-388-3621
Carole Dewey	Phlebotomy	CLSAUNDE@sentara.com 757-388-0099
Sentara Molecular Diagnostic Laboratory		
Dr. Tabettha Sundin	Scientific Director	trsundin@sentara.com 757-388-5910
Dr. David Seidman	Clinical Point of Contact	DXSEIDMA@sentara.com
Sentara Obici Hospital		
Charlie Banks	Laboratory Manager/Site Coordinator	crbanks@sentara.com 757-934-4731
Sentara Princess Anne Hospital		
Priscilla Darville	Laboratory Manager/ Site Coordinator	757-507-1645 PADARVIL@sentara.com
Katherine Morris	Blood Bank	KAMORRI2@sentara.com 757-507-1620
Hiral Patel	Hematology/Coagulation	757-507-1620 HRPATEL1@sentara.com
Shalayla Mingo	Chemistry	SCMINGO@sentara.com 757-507-1620
Talia Alls	Microbiology/Urinalysis	TCWILLI2@sentara.com 757-507-1620
Sentara Virginia Beach Hospital/Sentara Independence		
Marisa Kiger	Laboratory Manager	MSKIGER@sentara.com 757-395-8696; 757-475-2574 - P
Joyce Francia	Chemistry	JSFRANCI@sentara.com 757-395-8133
Sara Henning	Hematology/Coag	SEHENNIN@sentara.com 757-395-8057
Deborah Hibberd	Blood Bank	dkhibber@sentara.com 757-395-6780P

Position not filled	Microbiology/Urinalysis	757-395-6780
Sentara Williamsburg Regional Medical Center		
Tercassa Emerson	Laboratory Manager/Site Coordinator	TJMAJETT@sentara.com 757-984-7966
Hannah Thomason	Blood Bank	hlthomas@sentara.com 757-984-7982
Nancy Jones	Hematology/Coag/Micro	NSJONES@sentara.com ; 757-984-7990
Brittney Mayhill	Chemistry/Transfusion	BMMAYHIL@sentara.com 757-984-7990
Michele Spencer	Phlebotomy	mlspence@sentara.com ; 757-736-0115
Southampton Memorial Hospital (Franklin)		
Linda Pittman	ODU Liaison/Education Coordinator	Linda.Pittman@chs.net 757-569-6194 (or 6193 for lab)
Veterans Administration Medical Center Hampton		
Mary Petty	ODU Liaison/Education Coordinator Laboratory Manager	mary.petty@va.gov 757-722-9961 x3632
Deitra Phillips	Hematology/Coag/	Deitra.Phillips@va.gov 757-722-9961 x 2870
Stacy Bohon	Phlebotomy	stacy.bohon@va.gov 757-722-9961 x 2650
Niurca Rossy	Microbiology	niurca.rossy@va.gov 757-722-9961 x2881
Mary Hasan	Blood Bank	mary.hasan@va.gov 757-722-9961 x3559
Steve Kelley	Chemistry	Stephen.kelley2@va.gov 757.722.9961 x2877
Veterans Administration Medical Center Richmond		
Neil Gamayon	ODU Clinical Liaison	Neil.Gamayon@va.gov 804- 675-5812
Shakita Kearney	Hematology	
Lori Guthrie	Microbiology	Lori.Guthrie@va.gov (804)675-5922
Amanda Rosser	Chemistry	Amanda.Rosser@va.gov (804) 675-5000 ext.4456
Brenda Carlton	Blood Bank	Brenda.carlton@va.gov (804) 675-5000; ext. 2995

Note on Medical Laboratory Science Program Policies:

All ODU Medical Laboratory Science (MLS) Program Policies and Practices are determined and enforced by the Program Director in conjunction with the School of Medical Diagnostic and Translational Sciences and the MLS Advisory Committee (****See Appendix A for Program Policies**).

Advisory Committee: The MLS Advisory Committee consists of: Education Coordinators from affiliate sites, ODU faculty, and selected members of the professional community. The committee meets in the fall of each academic year for a general meeting and in the spring for a meeting and student admissions interviews and decisions. All policies and practices of the ODU MLS Program are determined by the committee in accordance with the ODU College of Health Sciences.

Curriculum Committees: Each of the disciplines in the MLS Clinical Rotation Program has a curriculum committee. The committees are composed of an ODU faculty member and clinical instructors for each discipline from each affiliate site. The curriculum committees are responsible for reviewing and revising university and clinical course objectives.

Clinical Course Policies: All clinical course policies established by the MLS Advisory Committee are expected to be followed. (****See Appendix A for Clinical Course Policies**).

Clinical Course Objectives: Clinical course objectives are formulated, reviewed, and revised by the Curriculum Committees. The student should use the objectives to review and prepare for the rotation courses. Clinical instructors should use the objectives to determine that all pertinent information has been covered in the rotation. (****See Appendix B for Clinical Course Syllabi and Objectives Policies**).

Clinical Course Competencies: Each clinical course is designed to culminate in the attainment of specified competencies. Competency checklists for each clinical course must be completed for each student by clinical instructors. **These checklists must be returned to the Program Director at the completion of each course** (****See Appendix B for competency checklists**).

Criminal Background Check



All students must obtain a criminal background check prior to entering clinical rotations. **Castlebranch.com** has been chosen by Old Dominion University as the approved source for background checks. The **myCB Profile** also includes a platform for **immunization records and for drug screen testing (DS only required by selected facilities)**. The instructions for requesting the services are on the next page. The cost for background check and immunization record handling is **\$55.00** and the additional cost for drug testing is **\$60**. The results of the background check will either be presented in a sealed envelope to the appropriate facility representative on the first day of each clinical facility assignment or communicated directly to the facility representative by ODU Program director, depending on the clinical facility's preference. If a facility requires the results, have a copy made and keep the original for subsequent rotations. **Students deemed unacceptable by a facility due to results from a criminal background check forfeit that assignment and will not be allowed to complete the program of study.**

The next pages contain instructions provided for the students by CastleBranch. Please, note that instructions may be subject to change. A phone number is provided at the end so that students may request assistance.

In addition to background check, some clinical sites have also started to require a drug screen. The students assigned to these sites will be notified how to proceed.

STUDENT INSTRUCTIONS FOR OLD DOMINION
UNIVERSITY

MEDICAL LABORATORY SCIENCE



About Your Profile

MyCB is a secure platform that allows you to order your background check and medical document manager online. Once you have placed your order, you may use your login to access additional features of My CB, including document storage, portfolio builders and reference tools. MyCB also allows you to upload any additional documents required by your school.

Order summary

- Required Personal Information
 - In addition to entering your full name and date of birth, you will be asked for your Social Security Number, current address, phone number and e-mail address.
- Immunizations
 - Document trackers provide secure online storage for all of your important documents. At the end of the online order process you will be prompted to upload specific documents required by your school for immunization, medical or certification records.
- Payment Information
 - At the end of the online order process, you will be prompted to enter your Visa or Mastercard information. Money orders are also accepted but will result in a \$10 fee and an additional turn-around-time.

Place Your Order

Go to: castlebranch.com and enter package code: **OD03 (or OD03dt for drug testing)**

You will then be directed to set up your MyCB account.

View Your Results

Your results will be posted directly to your MyCB account. You will be notified if there is any missing information needed in order to process your order. Although 95% of background check results are completed within 3-5 business days, some results may take longer. Your order will show as "In Process" until it has been completed in its entirety. Your school's administrator can also securely view your results online with their unique username and password.



Measles, Mumps & Rubella (MMR)

-There must be documentation of one of the following:

- 2 vaccinations
- Positive antibody titer for all 3 components
(lab report required)

Varicella (Chicken Pox)

-Submit a positive antibody titer (lab report required).

Hepatitis B

-There must be documentation of one of the following:

- 3 vaccinations
- Positive antibody titer (lab report required)
- Declination waiver

TB Skin Test

Please see table below for all TB testing acceptable by the clinical sites. CastleBranch has been notified of 2018 changes in the requirements.

Tetanus

Please submit documentation of Td booster within the past 10 years. CastleBranch has been notified that in the presence of the booster, we no longer require proof of the original series.

Polio

Please submit documentation of the completed primary polio series. There must be record of at least 3 vaccinations.

Influenza

Vaccination documentation for the current season (August- May)

If you need assistance please contact CastleBranch at 888.850.4314

Health Records

Junior Students: HBV vaccination is strongly recommended for all students enrolled in both pre-clinical and clinical courses. **All program and non-program students in pre-clinical courses must provide documentation of completion or initiation of HBV vaccination series by the end of the first week of the semester that classes begin.** Students who choose not to be vaccinated or who have initiated the vaccine must sign a declination form indicating receipt of information regarding the protection conferred by the vaccine.

Senior Students: Records of immunizations required for **clinical rotations** are listed below. Please provide appropriate documentation to the **CastleBranch Corporation @CastleBranch.com** no later than **May 1 of your junior year. Failure to do so will prevent rotation attendance and may result in forfeiture of assignments.**

DISEASE	DOCUMENTATION
Tetanus/ Diphtheria	TD booster required every 10 yrs.
Tuberculosis	Documentation is provided of either: 1. Negative IGRA test results from either: (1) QuantiFERON [®] -TB Gold In-Tube test (GFT-GIT) or (2) T-SPOT [®] TB test (T-Spot); or 2. Two-step Mantoux Tuberculin Skin Tests TST (PPD) : two tests placed and read at least 2 weeks apart within the last year; a TST placed and read within the past 12 mos. may be used as the 1 st step; negative chest X-ray within last year if history of positive TST.
Polio	Completed primary series
MMR (Measles [Rubeola], Mumps, Rubella)	Doses 1 & 2 @ 12 mos or later and after May 1971. If no record of previous vaccination - titers are required
Varicella	Varicella titer - vaccine if susceptible
Hepatitis B	Vaccination series or signed declination form
Influenza	Vaccination documentation for the current season (August – May)

Note: A transcript of your Diphtheria/Tetanus, MMR, and Hepatitis B vaccination immunization records exists at ODU Student Health Center. **Additional required immunization documentation should be added to your existing transcript so that a single document may be uploaded to CastleBranch.**

The TB, Varicella titer, Mumps, Rubeola & Rubella titers (if required), and the Hepatitis B vaccine are available either at the Student Health Center for a fee or through your personal health care provider. If obtained from your PCP, the results should be added to your Student Health Center transcript.

Old Dominion University
College of Health Sciences
School of Medical Diagnostic & Translational Sciences
Medical Laboratory Science Program

Hepatitis B Vaccine Declination Form

I understand that during my University laboratory courses and clinical practica, I will be exposed to blood or other potentially infectious materials and I may be at risk of acquiring Hepatitis B Virus (HBV) infection. I have been encouraged by program faculty to be vaccinated with the HBV vaccine to eliminate or reduce the risk of acquiring the HBV. However, I decline the hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring HBV infection, a serious disease. In addition, I understand that as a student, I am responsible for all arrangements and fees involved in receiving the HBV vaccine.

I, _____ have not been immunized against the HBV and choose not to have the vaccine at this time.

I, _____ have started the HBV vaccination series and I will complete it.

I understand that I continue to be at risk of acquiring HBV infection, a serious disease.

Student Signature	Date

Program Faculty	Date

Old Dominion University
College of Health Sciences
School of Medical Diagnostic & Translational Sciences
Medical Laboratory Science Program
Emergency Health Care Services Responsibility

This is to acknowledge that the undersigned student is aware that any emergency health care services needed during clinical rotations will be his/her responsibility.

UIN

Student Name

Date

Student Signature

Date

Faculty Signature

Review of Didactic Course Materials

Students are expected to review didactic course materials before entering clinical rotations. Lecture notes, textbooks, lab materials and clinical course objectives should also be used in preparation for clinical sites. The ASCP BOC Review and other review materials are excellent resources for students to use in preparation for the second phase of the program.

Clinical instructors assume that the students entering rotations are well versed in the theory of their particular discipline. Clinical rotations are a time for learning advanced technical skills and gaining practical experience with clinical equipment and overall laboratory operations.

Pre-tests are administered prior to each practicum. Students may be required to make up deficiencies in a discipline before entering a clinical rotation if an acceptable grade is not achieved on the pre-test. Two additional tests are administered during each practicum according to schedule set by the ODU course director. All testing occurs in proctored environment. Students are expected to use their own computers and have access to Internet.

Color Blind Testing

Although color blind testing is not required upon entry into the MLS Program, the posted Technical Standards, signed upon acceptance, state that the students must be able to “[...] distinguish red, yellow, blue, and other color reactions; distinguish between solutions that are clear, cloudy or particulate; identify stained and unstained cellular and non-cellular components [...]”. For self-assessment of their own perception, students are encouraged to take the online Ishihara color blindness test <https://www.color-blindness.com/ishihara-38-plates-cvd-test/#prettyPhoto>

Professionalism

Students are reminded that once they enter a clinical site, they will be treated as professional Medical Technologists/Medical Laboratory Scientists. Students will be graded on professionalism through the Professional Characteristics component of the grading policy. Please review these characteristics and be prepared to exceed the standards. A display of strong ethics during the clinical rotation is expected.

Interprofessional Education (IPE)

Students are exposed to Interprofessional education events organized by the College of Health Sciences to develop awareness of their role in the interdisciplinary health care. During the entire practicum, students are required to document one interprofessional interaction with a health professional outside of the laboratory. See documentation form in Appendix C.

Email Etiquette

When communicating with practicum course directors, clinical site liaisons and instructors, students should follow the accepted email etiquette as described by ODU guidelines found at <https://www.odu.edu/content/dam/odu/offices/mane-connect/doc/emailing-professors.pdf>

Cell Phone Use and Storage

Listing of cell phones by OSHA and laboratory safety officers as distractions, and the potential for their contamination are reasons to restrict cell phone use in technical areas. There are confidentiality and security concerns as well. Students will adhere to the cell phone use policy at their clinical site.

Dress Code and Grooming

Dress codes are site specific. Scrubs and lab coats over street clothes are examples of allowed attire. If the site that you are attending does not have a specific dress code, please be reminded that blue jeans, sweat pants, shorts and short skirts are not appropriate. Legs must be fully covered including ankles, (low-cut socks are not acceptable). Shoes should be clean, leather, closed toe and heel, and functional. Grooming policies vary but are consistent with regard to hair, nails and jewelry. Providers who have direct patient care are NOT to wear artificial fingernails or extenders. Natural fingernails should be $\leq 1/4$ inch long. Nails may be painted with pink shade/clear fingernail polish. Long hair should be pulled back and tied. Avoid large, bold jewelry, i.e. earrings, rings and necklaces.

Please contact the clinical site approximately one week in advance of your assignment to remind them that you are coming and to obtain information on dress code, parking arrangements and preparation for the rotation.

ROTATION SCHEDULES AND ASSIGNMENTS

Clinical rotation schedules are assigned to students on the basis of their predicted date of graduation, i.e., those with a closer graduation date are given preference for available rotation schedules. Clinical rotations are scheduled over the course of two semesters by the Education Coordinator and Program Director. In most situations, second-degree students are scheduled for summer and fall semester rotations, which will allow them to graduate in December. Traditional and transfer students are typically scheduled for rotations in the summer and spring semesters with a May graduation date. Part-time students and those repeating courses will have variable graduation dates and will be scheduled for rotations accordingly.

The affiliate laboratories give the ODU Clinical Education Coordinator a list of the number of students they can take in any given semester, and possible dates and departments for the rotations. Internships/practica will be assigned as they become available and may be made for evening, night as well as day shifts. Students are expected to be available for all rotations scheduled.

If placements are difficult because of the lack of available slots, there will be a priority list established that will be based on projected date of graduation, progress in preclinical courses, and readiness to graduate (no outstanding GED courses). Assignments will be made on a priority basis, i.e. preference will be given to students who are ready for graduation immediately upon completion of practicum courses. Assignments will be made based on academic performance, centered on cognitive, psychomotor, as well as affective behaviors. Every attempt will be made to place all students and to avoid delaying individual student's graduation.

Student learning experiences in clinical practicum courses are performed under the supervision of a preceptor. Student learning experiences, however, are not substituted for the work of the staff. Service work performed by students outside of academic hours is not required or permitted to fulfill practicum requirements.

Students will receive a rotation schedule for each semester for which assignments are required. Students will keep this schedule for their records and may use the form to record grades. **(See Appendix C for MLS CLINICAL PRACTICUM ASSIGNMENTS FORM)**

If a student fails to appear for a rotation, that student will be dismissed from the program. A student who does not pass an assigned clinical rotation will be placed at the end of the list and must wait for the next available rotation, assuming that there is no other violations of the program's continuance policy.

Old Dominion University

Attendance Policies

All students scheduled for clinical rotations are expected to show up on time each day of the rotation. Failure to show up for a rotation or leaving a rotation without properly notifying the Clinical Instructor, Clinical Education Coordinator and Program Director will result in the student's suspension from the rotation.

Rotation Hours:

The beginning and ending hours for each rotation day are left to the discretion of the Clinical Instructor. Rotations that include maintenance often have variable hours to allow the student to experience all aspects of the daily routine.

Vacations and Holiday Schedule:

While in clinical rotations, students will follow the hospital's vacation and holiday policy and not the University's schedule (i.e. students will not necessarily have the week of spring break off).

Attendance Log Sheet:

Students are required to maintain an attendance log sheet while in their clinical rotations. (**See Appendix C for Attendance Log). One log sheet will be kept during all rotations and is the responsibility of the student and not the Clinical Instructors. Students are expected to sign in each day they are in rotation and at the end of each week and have an instructor initial the attendance log. The attendance log will be turned in to the Clinical Education Coordinator before graduation. **All students must turn in the completed attendance log before graduation.**

Absence or Tardiness:

Clinical Instructors must be properly notified when there is an **anticipated or unanticipated absence or tardiness**. Instances of absences and /or tardiness greater than 10% of the time during a clinical rotation will result in a "failed to meet" evaluation of Professional Characteristics which translates to a failing grade for the clinical course. Students are **strongly encouraged** to be on time and have perfect attendance during all clinical rotations. Please remember that clinical instructors are potential employers and references when the job search begins.

Safety

OSHA Standard

Students are reminded that the OSHA Bloodborne Pathogen Standard is to be followed at all times. The standard includes Universal Precautions, personal Protective Equipment, Engineering Controls, and Work Practice Controls. Please review the Medical Diagnostic and Translational Sciences (MDTS) Biosafety Policy Manual for standard guidelines and requirements.

Clinical Site Standard Operating Procedures (SOPs)

Students are required to follow site specific standard operating procedures for safety at all times. Students must review with each Clinical Instructor, site specific safety instructions the first day of each rotation and adhere to these policies throughout the rotation. The extent of safety training is at the site's discretion. In the absence of their own student safety checklist, clinical sites may choose to use the list of safety/orientation items and signature sheet provided in Appendix C. The sheet must be dated and signed by the laboratory supervisor or safety training personnel, and by the student.

Hepatitis B Vaccine

Although students are not required to obtain the HBV vaccination series, it is strongly recommended. Work will be performed on real patient samples and therefore the protection afforded by the HBV vaccine is a wise choice. Post immunization testing is highly recommended. A signed declination form is required if vaccination against the HBV is rejected.

Exposure Incidents

If a student is exposed to blood or other potentially infectious material, the student must follow the exposure protocol outlined below:

Services and treatment needed may be provided by the clinical site, ODU Student Health Center, or the student's Primary Care Physician (PCP) or a combination of the three.

In the Event of An Exposure Incident (contaminated needlestick, puncture wound from a contaminated, sharp instrument or contamination of any obviously open wound or the mucous membranes by saliva, blood, or a mixture of both saliva and blood):

1. Wounds and skin sites that have been in contact with blood or body fluids should be washed with soap and water; mucous membranes should be flushed with water. Inform the clinic site instructor/supervisor **immediately**.
2. If post exposure testing service is provided by the site, the student's blood should be drawn **as soon as possible*** if testing for HbsAg, Anti-HCV, and Anti-HIV is deemed necessary.
3. If this service is NOT provided at the clinical site, the student should:
 - a. Go to ODU Student Health Center where testing may be provided.
 - b. If this occurs after normal working hours at the Student Health Center, the on-call licensed care practitioner will be notified and will refer the student for the off-site testing (757-683-4000). **(See Appendix C for Student Health/ODU Student Exposure Information). The student through the student's own insurance or resources must cover needed services and treatment. Post exposure services, including counseling are available through Student Health Center; however, the student is responsible for the cost of all testing.**

- c. Go to his/her PCP to obtain the necessary post exposure services and treatment
4. The person whose blood or body fluid is the source of an occupational exposure should be evaluated for HBV, HCV, and HIV infection **as soon as possible*** so that appropriate follow-up can be instituted. If the student is seeking post exposure care at the Student Health Center or from a PCP, the results of the source patient testing should be made available **as soon as possible***.

The incident should be reported to the MLS Program Director and the Student Health Center. The student and supervising instructor should complete the COHS Incident Report Form (**See Appendix C**). One copy should be kept at the health facility where the accident occurred, one copy should be submitted to the Program Director, and one copy to the Student Health Center. Both should be submitted within 24 hours.

*Student and source person should be evaluated as soon as possible after the exposure incident. Post exposure prophylaxis (PEP), if needed, should ideally be initiated within two hours (**See Appendix C**).

Standards for Privacy

All students are required to become knowledgeable about the Health Insurance Portability and Accountability Act (HIPAA) of 1996 and state laws regarding standards of privacy. The next page contains signature sheet with confidentiality obligations. Sign the form and return to Program Director, Medical Laboratory Science, Old Dominion University. Keep a copy for your records.

Old Dominion University
Medical Laboratory Science Program
Standards for Privacy at Affiliated Facilities

Student's Name: _____

Confidentiality Obligations. In the course of your presence at affiliated institutions you may be exposed to incidentally or otherwise federally protected health information (PHI) and other Confidential Information including, but not limited to: all patient information, all information, data, reports, records, summaries, tables and studies, strategic and development plans, financial condition, business plans, co-developer identities, customer lists, employee lists and business manuals, whether written or oral, fixed in hard copy or contained in any computer data base or computer readable form, as well as any information identified as confidential ("Confidential") of the affiliated institution.

You must abide by the Standards for Privacy of Individually Identifiable Health Information (IIHI) (the "Privacy Regulations") under the Health Insurance Portability and Accountability Act of 1996 ("HIPAA") and State Laws including but not limited to the following:

1. You have a responsibility to protect PHI and other Confidential Information and that a breach of confidentiality may make you subject to legal action in forfeiture of the Affiliation Agreement with termination of program participation at the Facility,
2. You cannot use or disclose PHI and other Confidential Information to any third party,
3. You can only access PHI and other Confidential Information for which you have a need to know and then the permitted use is limited to the minimum needed in connection with performance of affiliation duties,
4. You have an obligation to keep PHI and other Confidential Information confidential, including but not limited to:
 - a. Permitted conversations concerning Confidential Information must take place such that the information remains confidential.
 - b. Confidential Information gained through incidental access is not to be shared with anyone. Incidental access that could be considered a breach of confidentiality **MUST** be reported to the Facility management.
 - c. Unless permitted by the Privacy Officer, no Confidential Information is to be removed from the Facility.
 - d. The proper disposal of Confidential Information requires that the information is rendered unrecognizable. Confidential disposal bins are available throughout the Facility for use.
 - e. Confidential Information will be de-identified for the purposes of developing oral, written reports required for completion of program/participant requirements.
 - f. Copying, transmitting, using or disclosing Confidential Information will not be permitted.

I understand my obligations to maintain and protect the confidentiality of protected health information (PHI).

_____ Date: _____

Affiliated Participant Signature

INSTRUCTOR EVALUATION OF STUDENT SKILLS

Old Dominion University

Clinical Practicum Grades

Rotation grades are calculated from three separate components (**See Appendix C for Rotation Grade Form**).

Written (Online) Component: The written component includes all written/online tests, papers and presentations given during the rotation. The university provides three tests, a Pre-test, Exam 1 and Final Exam. The weights are outlined on the grade form. The written/online component counts as 50% of the overall course grade. A student must receive a “C” (76%) or better in order to receive a “C” or better for the rotation grade. Action plans can be used by Education Coordinator and Course Director to remediate cognitive problems.

Oral Presentation: Students are expected to research a subject agreed upon with the clinical instructor and deliver a presentation on a subject to the laboratory staff. Oral Presentation Evaluation Form is provided in Appendix C. The weight of the presentation is outlined on the grade form.

Practical Component: The practical component grade is derived from an average of practical tests. The number and format of tests are outlined on the grade form. The practical component counts as 50% of the overall course grade. A student must receive a “C” (76%) or better in order to receive a “C” or better for the rotation grade.

Professional Characteristics: Students are assigned a pass/fail grade for the professional characteristics component of the rotation course. Students are evaluated as having “exceeded”, “met” or “failed to meet” the following seven characteristics:

- Policy Compliance
- Promptness/Attendance
- Initiative
- Responsibility
- Reliability
- Professional/Workplace Demeanor
- Integrity

(See Appendix C for Professional Characteristics Evaluation Form) A student must “exceed” or “meet” all of the characteristics listed. One or more “failed to meet” assessment will result in a failing grade of the professional characteristics component. A failing grade in professional characteristics will result in a failing grade for the student in that rotation.

Practicum Grading Scale:

- A = 93-100%
- B = 86-92%
- C = 76-85%
- D = 65-75%
- F = Below 65%

Action Plans

Prescriptive action plans will be employed to facilitate student remediation of performance identified as less than satisfactory in each component. Prescriptive action plans will be employed only one time and may extend the time the student spends in a rotation course (**See Appendix C for Action Plans**).

Failure Policy:

If a student fails to obtain a grade of “C” (76%) or better for a clinical course, that course must be repeated if the student is eligible for the repeat. (****See Appendix A for Course Policies**) If eligible, the student who fails a rotation course will be placed at the bottom of the list for an available site assignment. This may result in a delay of the student’s scheduled graduation date. No guarantee of a graduation date can be given to a student when a clinical rotation course is not completed successfully.

**STUDENT EVALUATION OF CLINICAL INSTRUCTORS
& PRACTICUM PROGRAM**

Old Dominion University

Student Evaluation of Clinical Instructors:

All students in clinical rotations will be asked to turn in evaluations of their clinical instructors at the end of the semester. The evaluations will be kept anonymous. They may be submitted via web links in each clinical practicum Blackboard course (preferred) or as a hard copy (see appendix C) left in MDTS office (room 2118). Students are reminded to list both: positive and negative experiences and give constructive criticism. Feedback from the evaluations will be used by instructors to improve and maintain the quality of their rotation.

Student Evaluation of the Clinical Practicum/Rotation Program:

All students in clinical rotations will be asked to complete an evaluation of their entire Clinical Practicum/Rotation Program. The evaluations will be kept anonymous. Students are asked to answer questions candidly and to give constructive criticism. The link to the survey will be sent shortly prior graduation. If preferred, students may leave hard copy in MDTS office (room 2118).

(See Appendix C for Clinical Instructor and Clinical Practicum/Rotation Program Evaluation Forms)

REQUIREMENTS FOR GRADUATION

Old Dominion University

Degree Checklist:

All students are required to complete a degree checklist that will be kept in student's file in the MLS department. The checklist should be completed **prior** to entering clinical courses to ensure that all pre-clinical courses and requirements have been met.

Clinical Course Credit Hours:

Clinical Laboratory Science students are required to complete 18 credit hours of clinical courses. The disciplines and credit hours required are listed below:

<u>Discipline</u>	<u>Course</u>	<u>Credit Hours</u>	<u>Weeks</u>
Chemistry	MLS 452	5	5
Microbiology	MLS 406	5	5
Blood Bank	MLS 454	4	4
Hematology	MLS 404	4	4
		<hr/> 18	<hr/> 18

Senior Seminar:

In addition to the 18 credit hours of clinical courses, students are required to take the Medical Laboratory Science Seminar course (MLS 457) during their final semester. MLS 457 is a one credit, **P/F**, web-based course, designed primarily to prepare students for the Board of Certification (BOC) examination. A pre-test, discipline practice examinations and a final examination are scheduled throughout the semester. Students must adhere to the examination schedule. A **grade ≥ 70** must be earned on the final examination and **documentation of application to the BOC** certification examination must be provided in order for a "P" to be assigned.

Grade Requirements:

Students must obtain a "**C**" (**$\geq 76\%$**) in each clinical course (practical and written/online) in order to successfully complete the Medical Laboratory Science Program.

Forms and Documents:

The following forms must be submitted to the Program Director prior to graduation:

- Attendance Log
- Evaluation of the Clinical Rotation Program (link sent online prior graduation)
- Clinical Instructor Evaluation Forms (links in practicum Bb courses)
- Medical Laboratory Science Alumni Registration Form
- Records Release Authorization Form
- Immunology/Serology and Urinalysis Study Questions and Case Histories (posted **on Bb in MLS 404 and MLS 454**) for students to work on during all rotations).

Program requirements are not complete unless Urinalysis and Immunology Checklists, as well as the study questions and case studies are submitted.

See **Appendix C** for the Instructor and Clinical Rotation Program evaluation forms and the Alumni Registration Form.

Appendix A

Old Dominion University

OLD DOMINION UNIVERSITY
College of Health Sciences
School of Medical Diagnostic and Translational Sciences
Medical Laboratory Science Program
PROGRAM POLICIES

THESE POLICIES ARE SUBJECT TO CHANGE. STUDENTS WILL BE INFORMED AND HELD RESPONSIBLE FOR ANY CHANGES.

As a student in the Medical Laboratory Science (MLS) Program I am aware of the following:

General Program Course, Attendance, Continuance, and Grade Requirements

1. Junior year core courses that are over three years old prior to starting a rotation, must be reevaluated by the faculty member at ODU in charge of the specialty, in both theoretical knowledge and technical skills. Reevaluation may result in the requirement to repeat and/or audit out-of-date courses. This applies to both part-time and returning students.
2. Students who take courses out of sequence must demonstrate competence in the out of sequence courses either at the end of the semester preceding or at the beginning of the semester of the out of sequence course. Competence will be assessed by examination. If competence is not demonstrated (grade ≥ 76), the course or courses must be repeated and/or audited.
3. Continuance in the program is contingent upon my maintaining a GPA of ≥ 2.0 in all MLS courses attempted. Failure to maintain this will result in a probationary status for the following semester.
4. Students will be maintained in a probationary status for one semester exclusive of the summer term. Failure to meet the minimum academic standards by the end of the probationary terms will result in dismissal from the program.
5. At no time students, while on probation, be allowed to enroll in any clinical courses.
6. Students with exceptional backgrounds may challenge lecture courses with permission of the course instructor and MLS Program Director. The granting of a waiver for laboratory courses is dependent on the evaluation of previous training and experience by the course instructor and MLS Program Director.
7. Failure to start the fall semester after admission the previous spring will result in dismissal from the program.
8. Students are expected to abide by the University's class attendance policy and the attendance policy of each program course.
9. Having to attend work shall never be accepted as an excuse to miss class, or leave a clinical rotation early.

10. Students are responsible to attend all meetings so designated by the MLS Program Director. All senior class meetings are mandatory. Also, students are required to activate and maintain an ODU e-mail account. Students will also be held responsible and accountable for all information and policy changes communicated through e-mail and meetings, even if not present.
11. Students must maintain a minimum grade of "C" in all Medical Laboratory Science courses, including management (MLS 403W) and statistical applications (MLS 440). Pre-clinical courses with less than a "C" grade must be repeated before entering clinical rotations (see #14 below). **Positions in subsequent classes may not be held for students who are out of curriculum sequence if enrollment numbers fill available course capacity.**
12. Students who earn a grade of "C -" (C minus) in a pre-clinical course may submit a request for exception (RFE) to this policy (11) to the Program Director no later than 5 working days after the receipt of the course grade. The Medical Laboratory Science Continuance Committee*, whose decision will be final, will review all requests for exception. If the exception is granted, the student will be put on probation. Submission of **no more** than two RFEs for the same pre-clinical MLS course or two different pre-clinical MLS courses will be allowed. A third C- grade will result in **dismissal from the program** (see #14 below). Request forms may be obtained from the MLS Program Director.
13. All students must earn a "P" when evaluated for each of the Affective Behaviors/Professional Characteristics in preclinical as well as clinical courses. An action plan will be used to remediate deficiencies. Failure to remediate deficient characteristics as prescribed by the action plan and to "meet" minimum professional standards will result in dismissal from the program.
14. A grade of "D" or less in the same pre-clinical MLS course twice or two different pre-clinical MLS courses will result in **dismissal** from the program. Remaining in MLS courses after dismissal is **not** recommended and is strongly discouraged. Permission to continue with selected courses may be granted following counseling by the MLS program director. Consideration for readmission may be made **only** upon written request to the Admissions Committee at its next scheduled meeting. Decisions will be made on an individual basis, following evaluation of academic performance and professional aptitude. The schedule for repeating students will be required to adhere to an out of sequence curriculum that will be selected to reduce cognitive decay prior to clinical rotations and the BOC examination. **This may result in the requirement to repeat and/or audit previously completed courses. Positions in subsequent classes may not be held for students who are out of curriculum sequence if enrollment numbers fill available course capacity.**
15. Students who withdraw from any of the junior year courses after acceptance into the program, will forfeit the right to the next scheduled rotations.
16. Students may at any time request an advisor to document in writing, with the use of the counseling record, any statement made as to requirements, courses he or she desires to challenge or to have substituted. Documentation may also be requested for anything outside of the advising process, including complaints. The counseling record form will become a permanent part of the student's file.

17. It is the student's responsibility to frequently check Blackboard and ODU email for announcements pertaining to the program.

* Continuance Committee consists of full time MLS faculty and any instructor involved in the relevant coursework.

Clinical Practicum Courses, Attendance, Continuance, and Grade Requirements

1. Required placement in clinical internships/practica will be dependent upon meeting the specific health and immunization as well as background check requirements of affiliated institutions.
2. Internships/practica will be assigned by the Program Director and Education Coordinator as they become available and may be made for evening, night, as well as day shifts. Student learning experiences in clinical practicum courses are performed under the supervision of a preceptor. Student learning experiences, however, are not substituted for the work of the staff. Service work performed by students outside of academic hours is not required or permitted to fulfill practicum requirements.
3. Internships/practica assignments will be made on a priority basis, i.e., preference will be given to those students who are ready for graduation immediately upon completion of practicum courses. **In case of a shortage of clinical sites, assignments will be made based on academic performance, centered on cognitive, psychomotor as well as affective behaviors. Every effort will be made to avoid a delay of scheduled graduation dates.**
4. Students may be required to attend several different clinical sites. Transportation is the student's responsibility. Internships/practica may be local or at distant sites. Newly acquired clinical sites may require relocation for the assignment period.
5. Students may be removed at any time from any rotation or from the program itself for any willful infraction of any university, departmental, program or hospital policy.
6. Students' performance during clinical rotations will be graded on theory, technical skills, and professional characteristics according to the following percentages and **Practicum Grading Scale**:

Written Exams: 50%

Technical Skills: 50%

Professional Characteristics: Pass/Fail

A 93-100%

B 86-92%

C 76-85%

D 65-75%

F Below 65%

All clinical competencies must be met. An action plan will be used to remediate deficiencies.

7. Students must attain a passing grade of at least a "C" in the written and practical areas and a "P" on the affective behaviors/professional characteristics area of the clinical

courses evaluation in order to successfully complete the courses. An action plan will be used to remediate any deficiencies that occur during the rotation in each area of evaluation. A grade of "D" or below in the written and practical areas will require you to repeat that clinical course at the convenience of our clinical affiliates. There is no guarantee that the rotation can be repeated in the same semester or any other semester if none is available. A grade of "D" or "F" will require you to re-register for the course.

All students must earn a "P" when evaluated for each of the affective behaviors/professional characteristics in clinical courses. Failure to remediate deficient characteristics as prescribed by the action plan will result in dismissal from the program.

8. If you fail a rotation course you will be placed in an inactive status and reassigned that rotation only if one becomes available. Students in good standing will be given priority when assignments are made.
9. If you fail a rotation you will be required to re-register for it and pay full tuition again.
10. A grade below a "D" in the same rotation course twice or two different rotation courses will result in permanent dismissal from the program.
11. Students are expected to attend and complete all assigned clinical rotations. Students will be automatically suspended from the program for failure to appear for a clinical rotation or for withdrawing from a clinical rotation without authorization from the clinical instructor and MLS Program Director. Emergency circumstances will be evaluated by the Program Director.
12. Students desiring to challenge any clinical rotation must declare their intent to do so in writing to the MLS Program Director or Clinical Coordinator within the first week of the semester preceding the start of their clinical rotation, and must abide by the formal challenge policy.

Graduation Requirements

1. **Students must meet the university's writing requirement, which is a grade of C (2.0) or better in ENGL 110C, and a C (2.0) or better in ENGL 211C or 221C or 231C, and a C (2.0) or better in the writing intensive W course (MLS 403W) of the major.**
Failure to meet the writing requirements will jeopardize scheduled graduation dates and rotation assignments.
2. Students are responsible for knowing what course requirements are needed in order to graduate. This involves knowing what one's catalog year is, reading that catalog, checking DegreeWorks, and knowing all the university and departmental requirements for the Bachelor of Science degree in Medical Laboratory Science.
3. MLS 457 (Medical Laboratory Science Seminar) is a required course for graduation. Students must meet and complete all the requirements for this course, which include successfully passing a final comprehensive exam in all the areas of Medical Laboratory Science with a minimum passing grade of 70%. The grade option for the course is P/F.
4. Students are responsible for meeting the university's deadline for application for graduation.

Student Health, Malpractice and Background Checks

1. Clinical malpractice coverage is provided free of charge by the University for all Medical Laboratory Science students registered in practicum courses.
2. Students are responsible for their own health care coverage.
3. **In the event of an injury or accident, a report must be made immediately to the supervising faculty or clinical instructor, the MLS Program Director, and the Student Health Center. A College of Health Sciences Incident Report must be completed and sent to the MLS Program Director and the Student Health Center within 24 hours. If the injury or accident is one that involves significant biohazard exposure, the protocol described in the MLS Student Handbook is to be strictly followed. Emergency treatment for any injuries incurred during on-campus laboratory or clinical course activities must be covered through the student's own insurance plan or resources. Follow-up health care and testing is the student's responsibility.**
4. Students are required to have a two-step PPD (or the approved blood test as listed in the section on "Health Records") and other required immunizations prior to any clinical experience. This includes Clinical Elective Practicum (phlebotomy rotation) as well as any other rotation. The PPD is good for only 12 months and it is the student's responsibility to see that it is redone annually. The testing may be done at the Student Health Center or by a physician of one's choosing. In either case, it is the student's responsibility to see that a record of required immunizations is uploaded to the Immunization Tracker located at www.castlebranch.com . Failure to do so can negatively affect rotation assignments. Any time lost from a rotation will be made up at the preceptor's discretion.
5. Starting any clinical rotation course (including phlebotomy), without having previously registered for it, will result in permanent dismissal from the program. Students must report all injuries that occur while in on-campus labs or in clinical rotations to the designated instructor and request documentation of same.
6. Student's must have on their person at all times, while in clinical rotation, proof of registration for that rotation. This rule also applies to Phlebotomy rotation.
7. All students must obtain a criminal background check prior to entering clinical rotations. The background check is obtained from www.castlebranch.com . The results will be conveyed to the site coordinator. Each student is responsible for keeping documentation of background checks up to date. Students deemed unacceptable by a facility due to the results of a criminal background check forfeit that assignment and will not be allowed to complete the program of study.

University Honor System

All students will be bound by the University Honor Code in all **university courses and practicum courses**. All violations will be dealt with according to the University Honor System Policy and are subject to review by the MLS Advisory Committee. The committee's decision will be final with regard to program continuance.

Student Appeal Process

1. Academic and non-academic disciplinary actions may be appealed first to the Program Director and/or the MLS Continuance Committee. An unfavorable decision may then be appealed to the Chair of the School of Medical Diagnostic and Translational Sciences. In the event of an unfavorable decision by the Chair, an appeal may be made to the MLS Advisory Committee. The committee's decision will be final. All appeals must be submitted in writing. All appeals will be documented using written communication and/or a counseling record form which will become part of the student's permanent file.
2. Students must follow the *Grade Appeals Policy and Procedures* as outlined in the University Catalog.

Student Complaints

Student complaints not addressed above will be handled in the following manner:

1. Address the faculty involved; if no resolution is reached or the decision is unsatisfactory, then
2. Petition the Program Director and/or the MLS Continuance Committee; if no resolution is reached or the decision is unsatisfactory, then
3. Petition the School Chair; if no resolution is reached or the decision is unsatisfactory, then
4. Petition, in writing, the MLS Advisory Committee whose recommendations will be final. All complaints will be documented using written communication and/or a counseling record form which will become part of the student's permanent file.
5. If appropriate, the student may follow the steps outlined in *Student Complaint Procedure* in ODU Catalog.

Admission Categories*

The following are conditions and requirements of acceptance:

- A. Full Acceptance - student has met all requirements and was found acceptable after interview by the MLS Advisory/Admissions Committee. The student must start MLS courses by the next fall term following acceptance or relinquish their appointment for candidacy into the MLS Program.
- B. Conditional Acceptance - accorded to those students, after interview by the MLS Advisory/Admissions Committee, who have not completed all freshman and sophomore prerequisites at the time of interview or have marginal academic qualifications in one, but not more, of the stated standards. All deficiencies must be met by the end of the summer term (with a grade of \geq "C") following acceptance or they relinquish their appointment to full candidacy within the MLS Program. Reapplication for admission to the next class is required.
- C. Provisional Deferred - (approved February 21, 1996) accorded those applicants without enough credentials for proper evaluation by the Admissions Committee. These students

may not be interviewed and can be accorded this status by the MLS faculty board, that will outline a program of study for them. **This status implies no obligation on the part of the program to accept the student, even when all obligations are met.**

1. Provisional status will allow the student to declare Medical Laboratory Science as a major but **denies the individual admission to the clinical internships until formal acceptance is granted after interview by the MLS Advisory /Admissions Committee.** Provisional status allows students a Medical Laboratory Science faculty advisor, who will mentor them until they qualify for reapplication, or if warranted, advise them to seek another major.
2. Student may hold the provisional status only until the end of the following fall or spring semester the status is granted. The student must undergo the entire admission process again, including an interview by the MLS Advisory/Admissions Committee, in order to gain full acceptance.
3. Student must **strictly comply** with the program of study and specific conditions outlined by the assigned Medical Laboratory Science faculty advisor. The student's reapplication eligibility must include the assigned faculty advisor's recommendation for continuance.

***No pre-program student will be considered for admission who has earned less than a C in the same Medical Laboratory Science course twice or in two different courses. Furthermore, no obligation to either admit to the program or assign clinical rotations is owed to students who continue to take MLS courses against advisor's advice and/or without satisfying the requirements for category A above.**

Program Policies Acknowledgement

I HAVE READ THE ABOVE AND UNDERSTAND THE POLICIES PRESENTED. I UNDERSTAND THAT THIS SIGNATURE PAGE WILL BECOME A PERMANENT PART OF MY STUDENT FILE. I ALSO UNDERSTAND THAT THESE POLICIES ARE SUBJECT TO CHANGE AND THAT I WILL BE INFORMED AND HELD RESPONSIBLE FOR ANY CHANGES.

I further agree to provide immediate notification of any change in address, phone number, or academic status to the MLS Program Director.

I also grant permission for the release of my Criminal Background Check results to Clinical Affiliates prior to assignment to a clinical rotation.

My Catalog Year Is _____

My Projected Date of Graduation Is _____
Month/Year

Student Name **(Please Print)** _____

Student Signature _____

UIN# _____

Current E-mail Address _____

Date _____

Advisor and/or witness present _____
(Signature)

Date _____

OLD DOMINION UNIVERSITY
College of Health Sciences
School of Medical Diagnostic and Translational Sciences
Medical Laboratory Science Program

CLINICAL COURSE POLICIES

THESE POLICIES ARE SUBJECT TO CHANGE. STUDENTS WILL BE INFORMED AND HELD RESPONSIBLE FOR ANY CHANGES.

As a student in the Medical Laboratory Science (MLS) Program, I am aware of the following:

Attendance, Continuance, and Grade Requirements

1. Internships/practica will be assigned by the Program Director and Education Coordinator as they become available and may be made for evening, night, as well as day shifts. Student learning experiences in clinical practicum courses are performed under the supervision of a preceptor. Student learning experiences, however, are not substituted for the work of the staff. Service work performed by students outside of academic hours is not required or permitted to fulfill practicum requirements.
2. Internships/practica assignments will be made on a priority basis, i.e., preference will be given to those students who are ready for graduation immediately upon completion of practicum courses. **In case of a shortage of clinical sites, assignments will be made based on academic performance, centered on cognitive, psychomotor as well as affective behaviors. Every effort will be made to avoid a delay of scheduled graduation dates.**
3. Students may be required to attend several different clinical sites. Transportation is the student's responsibility. Internships/practica may be local or at distant sites. Newly acquired clinical sites may require relocation for the assignment period.
4. The first day of each clinical course begins at variable times. After the first day you will be informed of the regular starting time for the rest of that rotation. Clinical instructors welcome introductory calls from students a week in advance of the starting date so that special instructions or directions can be conveyed.
5. Students must follow the hospital's dress code at all times. Contact the site ahead of time to find out the site's dress requirements. Students are required to have visible, and on their person at all times, the approved ODU badge.

6. All hospital personnel policies, rules, and regulations must be followed. Violations of hospital policies constitutes grounds for suspension and/or dismissal from the program. Individual site policies will be detailed during the first day.
7. The amount of time required in each clinical course is basically inflexible. If you miss time for whatever reason, it must be made up. This should be discussed and arranged with your instructor.
8. The objectives and competencies for each clinical course are enclosed in your student handbook and on Blackboard. You are expected to be familiar with the objectives and to review notes from your preclinical courses; a failing grade may jeopardize your continuance. Any perceived lack of preparation on your part, by the clinical instructor, may prevent you from continuing in the rotation and possibly jeopardize continuance in the MLS program.
9. While in rotations, students are to follow the site's vacation policy and not that of the university.
10. If classes are canceled at ODU via official announcement due to inclement weather and your place of residence and/or clinical site area are affected, you are not required to attend your rotation but must make every effort to communicate with the clinical site so that they are aware of your absence. Your safety is the priority. Some hospitals have their own internal policy stating that students cannot be in their rotation if the University is officially closed, regardless of the reason.
11. All senior MLS students in the rotations are required to take and complete the MLS Seminar class (MLS 457) review exams as instructed.
12. Students must sign their evaluation forms at the end of each course. Signing does not imply that you agree with everything on the evaluation. It simply means that you have seen it and read it. If you have concerns over areas of the evaluation there is space provided to address this or you may follow the procedure outlined in the "Student Appeal Process" section.
13. During any rotation you will be graded on theory, technical skills, and professional characteristics according to the following percentages:

Written Exams	50%
Technical Skills	50%
Professional Characteristics	P/F

All clinical competencies must be met. An action plan will be used to remediate deficiencies. The clinical grading scale is as follows:

A	93-100%
B	86-92%
C	76-85%
D	65-75%
F	Below 65%

14. You must obtain a passing grade of at least 76% in the graded areas of the evaluation in order to pass that rotation. A grade of “D” or below in any of the two areas will require you to repeat that rotation at the convenience of our clinical affiliates, if it can be rescheduled. There is no guarantee that the rotation can be repeated that same semester or any other semester if none is available. A grade of “D” or “F” will require you to re-register. All students must earn a “P” when evaluated for each of the Affective Behaviors/Professional Characteristics in clinical courses. An action plan will be used to remediate deficiencies that occur during the rotation. Failure to “meet” minimum standards will result in an “F” in the course.
15. A grade below 76% in any of the two areas (theory, or technical), will result in a grade of “D” in the course. A grade below 65% in any of the areas will result in a grade of “F”.
16. If you fail a rotation course you will be placed on an inactive status and reassigned that rotation the following semester only if one becomes available. You, in turn, will be required to register for it and pay full tuition again.
17. A second failure in the same rotation will result in dismissal from the program.
18. Failure of any two different rotations will result in dismissal from the program.
19. Please remember that you will be removed from any rotation, or from the program itself, for any willful infraction of any university, departmental, or hospital policy including honor code violations.
20. Students will be suspended from the program for failure to appear for a rotation course without prompt and proper notification, and/or permission of the Clinical Instructor and MLS Program Director.
21. Students will be suspended from the program for leaving a rotation without authorization from the Clinical Instructor and Program Director.
22. Starting any clinical rotation course, without having previously registered for it, will result in permanent dismissal from the program.

Student Health, Injury, and Malpractice

1. Clinical malpractice coverage is provided free of charge by the University for all Medical Laboratory Science Students registered for rotation courses. You must have on your person at all times, while in the clinical rotation, proof of registration for that rotation.
2. All students must have proof of a PPD skin test (2 step) performed within the last 12 months or acceptable TB blood test and other immunization records as specified in the MLS Program Policies. Immunization documents must be uploaded to the Immunization Tracker database provided by CastleBranch.com. Students are responsible for their own health care coverage. Documentation of coverage must be available to the Program Director prior to entering rotations.
3. **In the event of an injury or accident, a report must be made immediately to the**

supervising faculty or clinical instructor, the MLS Program Director, and the Student Health Center. A College of Health Sciences Incident Report must be completed and sent to the MLS Program Director and the Student Health Center within 24 hours. If the injury or accident is one that involves significant biohazard exposure, the protocol described in the MLS Student Handbook is to be strictly followed. Emergency treatment for any injuries incurred during on-campus laboratory or clinical course activities must be covered through the student's own insurance plan or resources. Follow-up health care and testing is the student's responsibility. See the Student Handbook for specific steps to take in the event of a significant biohazard exposure.

4. All students must obtain a criminal background check prior to entering clinical rotations. The background check is obtained from CastleBranch.com. The results will be conveyed to the site preceptor. Each student is responsible for keeping documentation of background checks up to date. Students deemed unacceptable by a facility due to the results of a criminal background check forfeit that assignment and will not be allowed to complete the program of study.

University Honor System

All Students shall be bound by the University Honor Code in all University courses and clinical rotations. All violations will be dealt with according to the University Honor System Policy and are subject to review by the MLS Advisory Committee. The committee's decision will be final with regard to Program continuance.

Student Appeal Process

Academic and non-academic problems or issues arising in any clinical course should be handled using the following procedure:

- a. Discuss with Clinical Instructor.
- b. Discuss with Education Coordinator/Clinical Liaison at the involved hospital/healthcare facility.
- c. Discuss with ODU MLS Program Education Coordinator and, if needed, with Program Director.

Note: In no case should the Program Director be involved unless the student has already followed steps a and b.

- d. If the problem cannot be resolved at any of the above levels, students may utilize the formal procedure outlined in the MLS Program Policies.

Note: All appeals will be documented using written communication and/or a counseling record form, which will become part of the student's permanent file.

Student Complaints

Student complaints not addressed above will be handled in the following manner:

- a. Address the clinical faculty involved; if no resolution is reached or the decision is satisfactory then
- b. Petition the Education Coordinator/Liaison at the involved facility; if no resolution is reached or the decision is unsatisfactory then.
- c. Petition ODU MLS Program Education Coordinator and, if needed, the Program Director.

Note: In no case should the Program Director be involved unless the student has already

followed steps a and b.

- d. If the problem cannot be resolved at any of the above levels, students may utilize the formal procedure outlined in the MLS Program Policies.
- e. If appropriate, the student may follow the steps outlined in Student Complaints Procedure in the University Catalog.

Note: All appeals will be documented using written communication and/or a counseling record form, which will become part of the student's permanent file.

Old Dominion University

Clinical Course Policies Acknowledgement

I HAVE READ THE ABOVE AND UNDERSTAND THE POLICIES PRESENTED. I UNDERSTAND THAT THIS SIGNATURE PAGE WILL BECOME A PERMANENT PART OF MY STUDENT FILE. I ALSO UNDERSTAND THAT THESE POLICIES ARE SUBJECT TO CHANGE AND THAT I WILL BE INFORMED AND HELD RESPONSIBLE FOR ANY CHANGES.

I further agree to provide immediate notification of any change in address, phone number, or academic status to the MLS Program Director.

I also grant permission for the release of my Criminal Background Check results to Clinical Affiliates prior to assignment to a clinical rotation.

My Catalog Year Is _____

My Projected Date of Graduation Is _____
Month/Year

Student Name **(Please Print)** _____

Student Signature _____

UIN# _____

Current E-mail Address _____

Date _____

Advisor and/or witness present _____
(Signature)

Date _____

Appendix B

Old Dominion University

Old Dominion University

Medical Laboratory Science Program

MLS 404

CLINICAL HEMATOLOGY PRACTICUM

COURSE DIRECTOR: Rachel Childs, M.S, MLS(ASCP)^{CM}

E-MAIL: rchilds@odu.edu

TEXTBOOKS: Harmening, D. M. (2009). Clinical hematology and fundamental of hemostasis. 5th ed. F.A. Davis.

Carr, J. & Rodak, B. (2016). Clinical hematology atlas. 5th ed. Saunders/Elsevier.

Note: Additional references are available at the clinical site.

CREDIT HOURS - 4

COURSE DESCRIPTION

Direct clinical experience offered in automated and manual hematology procedures used in distinguishing blood dyscrasias and coagulation abnormalities.

GOAL

Students will perform basic hematology/hemostasis laboratory procedures in a clinical setting, correlate laboratory results with specific hematologic and non-hematologic disease states, and understand the operation and full scope of services provided in a clinical hematology laboratory.

Expectations of the following behaviors are the same as outlined for preclinical courses unless superseded by Clinical Course policies.

Attendance

Communication

Preparation

Conduct

Honor Code

STUDENTS WITH DISABILITIES

Reasonable accommodations are provided for student with disabilities. Students should self-identify to the instructor as early in the semester as possible in order to establish an accommodation process. See accessibility site: <http://www.odu.edu/educationalaccessibility>

I INTRODUCTION

Clinical Hematology Practicum is a four-week, hospital-based course designed to follow MLS 311/312 (Hematology lecture and lab), MLS 327 (Hemostasis lecture & lab), and MLS 337 (Advanced Hematology lecture & lab), which are based at the University. The course is specifically intended to develop new practice-oriented skills and to refine previously acquired technical skills in the performance

and interpretation of hematology and coagulation tests. Students are expected to enter this course well versed in theory and with basic knowledge of the technical aspects of a clinical hematology laboratory. At the completion of this course students will be able to demonstrate the competencies that should be possessed by an entry-level laboratory scientist in a typical hematology laboratory. **A pre-test will be administered prior to attending this practicum.**

II COMPETENCIES

- A. Operationalize mechanisms for the procurement, processing, and analysis of hematologic specimens.
- B. Perform standard hematology and hemostasis analyses, automated and manual, on blood, plasma, and other body fluids.
- C. Demonstrate accurate morphologic identification skills.
- D. Recognize discrepant results, using relevant numerical, morphologic, and interlaboratory data.
- E. Institute solutions or corrective actions for problems related to verification of abnormal results, quality control data, and quality assurance issues.
- F. Initiate and perform preventative maintenance, identify equipment and instrument problems, and institute corrective action.
- G. Utilize computer-based technology for input and retrieval of data and instrument operation.
- H. Research and develop a relevant hematology topic and deliver a presentation to department colleagues.
- I. Demonstrate professional characteristics and conduct with laboratory personnel, other health care professionals, and patients.

III BEHAVIORAL OBJECTIVES

Cognitive/Psychomotor

After completing this clinical practicum course, studying assigned materials, procedures and methodologies, and performing assigned tasks, the student will be able to demonstrate an overall achievement of $\geq 76\%$ on written and practical evaluations with $\pm 10\%$ accuracy on practical evaluations.

A. General

The student will be able to:

1. Process specimens including distribution to proper work areas, maintaining accession of specimens, and, with supervision, verifying completion and reporting of results, as institutional protocol dictates.
2. Identify precautions and/or special handling techniques for particular procedure requests.
3. Inspect and evaluate quality and suitability of the specimen for the request analysis.
4. Identify factors that contribute to pre-analytical, analytical & post-analytical variability.
5. Select the appropriate dilution, kit, and/or reagents as needed for particular assays, and determine appropriate substitutes for unavailable supplies.
6. Identify sources of biohazard, employing appropriate safeguards.
7. Recognize unsafe laboratory practices.
8. Perform computer related functions where applicable, including data input, retrieval and instrument operation.
9. Identify stages of blood cells in each cell line.

10. Identify/describe normal and abnormal (shape, size, color, inclusion) cells in each cell line.
11. Correlate numerical hematologic data with morphology.
12. Apply appropriate calculations in blood and body fluid analyses.
13. Identify coagulation factors and hemostatic components measured in each procedure.
14. Explain the INR, its calculation, use, therapeutic and diagnostic advantage.
15. Interpret ratios and results for the purpose of selecting therapeutic dosages.
16. Compare the criteria used to classify leukemias and other hematologic diseases, including the FAB and WHO systems.
17. Identify tests/findings used to make definitive cell and disease identification, including cytochemical stains, surface and cytoplasmic markers, chromosomal and molecular abnormalities.
18. Demonstrate affective behavior/professional characteristics and conduct by achieving a "met" or "exceeded" for each at terminal evaluation.

B. Specific

The student will be able to:

1. Perform the following analyses according to prescribed methodology. These must be completed with an accuracy of $\pm 10\%$.

<u>Required Tests</u>		<u>Number of Specimens</u>
a.	Platelets counts - estimated & performed	10
b.	Erythrocyte sedimentation rates	10
c.	Preparation of blood smears for routine differentials	20
d.	Complete blood smear examination - normal	50
e.	Complete blood smear examination - abnormal	50
f.	Histogram/scattergram interpretation	50
g.	Prothrombin Times/INRs	25
h.	Activated Partial Thromboplastin Times	25
i.	Fibrinogen assay	3
j.	D-dimers	3
k.	Body fluids (counts/microsc. eval. - var. sources)	10

2. Perform the following optional tests from the list below:

Optional Tests

- a. Bone marrow slide preparation
- b. Buffy coat differential
- c. Hematocrits
- d. Preparation of blood smears for routine differentials on newborns
- g. Thrombin time
- h. Protamine sulfate
- i. Factor assays
- j. Bleeding time (automated)
- k. Glucose -6- phosphate dehydrogenase
- l. Hemoglobin
- m. Flow Cytometry - CD4/CD8
- n. Activated Protein C - Factor V Leiden
- o. Protein C - Functional & Ag.
- p. Protein S - Activity & Ag
- q. Eosinophil counts
- r. Platelet Aggregation Studies

- s. Ristocetin Co-factor
 - t. Kleihauer-Betke stain
 - u. Manual reticulocyte counts (staining and counting)
 - v. Sickle cell screening tests
3. For each of the performed test procedures in 1 and 2 above, identify the reference range.
 4. Calibrate and operate the following instruments following the standard protocol.
 - a. Multi-parameter hematology analyzer.
 - b. Slide stainer
 - c. Microscope
 - d. Coagulation instrumentation
 - i. automated
 - ii. semi-automated
 5. Explain the principle of operation of all methods and instrumentation including mode of analysis, and substance measured.
 6. Identify errors (pre-analytical, analytical, and post analytical) in performed procedures including those due to technique, reagents, mechanical malfunction, etc.
 7. Isolate and identify errors due to sample, reagents, instrument malfunction, or physical causes.
 8. Identify/follow established quality control procedures including the development of a Levy Jennings chart.
 9. Recognize and identify the basic criteria of a good quality assurance program.
 10. Validate the accuracy of test results based on an assessment of obtained quality control values.
 11. Evaluate situations where the control samples are inside/outside of acceptable limits and prescribe corrective actions, where appropriate, using established criteria and applicable statistical measures.
 12. Demonstrate knowledge of the chemical and physical principles utilized in test performances.
 13. Assess the clinical significance of obtained test results.
 14. Correlate normal and abnormal hematologic and coagulation data with other clinical and/or laboratory findings in the identification of specific disease states.
 15. Given clinical, morphologic, numerical, cytochemical, and molecular data, identify/suggest specific hematologic or coagulation disease state.
 16. Suggest additional tests that may be used to aid in making definitive diagnoses.

Affective:

1-12 must be "MET" or exceeded according to established evaluation guidelines.

POLICY COMPLIANCE

1. Demonstrate an appreciation for the value and necessity of maintaining an orderly and safe laboratory environment by adhering to OSHA safety regulations, program and facility safety policies, and to practices outlined by the instructor.
2. Display professional/workplace responsibility by adhering to guidelines and policies outlined by the program, individual courses, and affiliated clinical facilities.

PROMPTNESS/ATTENDANCE

3. Develop the highly valued professional characteristic of maintaining a blemish free attendance and punctuality record by reporting to classes, laboratories, and assigned clinical sites on time, notifying instructors/supervisors promptly when absence is anticipated and meeting all established deadlines.

INITIATIVE

4. Display appropriate initiative and motivation in all academic and practical performances by completing both assigned and unsolicited tasks satisfactorily, addressing problems or interferences appropriately.

RESPONSIBILITY

5. Demonstrate an appreciation of the role of active participation in the education process by displaying preparedness and engagement in the classroom, laboratory, and clinical learning environments.
6. Display professional responsibility by accepting direction, adapting to the learning environment, and completing required assignments as outlined.

RELIABILITY

7. Demonstrate the ability to maintain intellectual and emotional stability and maturity under stress, by producing results that meet appropriate performance standards.
8. Demonstrate, by attitude and performance, an appreciation of the value and importance of procedural consistency and technical accuracy and precision.

PROFESSIONAL /WORKPLACE DEMEANOR

9. Display appropriate professional/workplace decorum during both the preclinical and clinical phases of the program by complying with the guidance, instructions, and direction outlined by faculty and clinical preceptors/mentors.
10. Comply with accepted rules of conventional professional/workplace behavior during both the preclinical and clinical phases of the program by exhibiting a cooperative, respectful, and collegial demeanor in interactions with faculty, classmates, clinical preceptors/mentors, and patients.

INTEGRITY

11. Display, through appropriate professional/workplace behavior and performance, recognition and respect for honest laboratory testing, patient confidentiality, and high quality patient outcomes.
12. **Comply with the Old Dominion University Honor Code by submitting only work which is the product of one's own effort (I pledge... to be noted on submitted work).**

An **Affective Behavior/Professional Characteristics Evaluation Form** will be used to evaluate each student at the end of the full rotation with the assignment of a grade of **Pass or Fail** (P/F).

A grade of "P" must be obtained on the Professional Evaluation with all behavioral criteria met or exceeded. **A grade of "F" will be assigned if all behavioral criteria are not met.**

IV WRITTEN/ORAL ASSIGNMENT

The student will be able to:

1. Prepare an organized paper and presentation on an appropriate topic (assigned or selected) that represents the outcome of scholarly efforts such as literature research, special projects or case history/study analysis.
2. Deliver an inservice to staff on an assigned or selected topic utilizing guidelines and principles of professional presentations obtained in pre-clinical and senior courses.

V. EVALUATION

Grade percentages:

50% Written/Oral

50% Technical/Practical

A minimum grade of "C" based on the following scale must be attained in each of the above areas:

A 93-100

B 86-92

C 76-85

D 65-75

F Below 65

Competencies:

Students must **meet or exceed** all competencies (See Competency Task List on the following pages).

Old Dominion University
Medical Laboratory Science Program

MLS 404 Clinical Hematology Practicum Competency Task List

Student Name: _____

Clinical Site: _____

Evaluator(s): _____

For each of the required tasks/competencies listed below, please indicate in the appropriate column the student's degree of performance and level (C or CE) for each task. Refer to the performance requirements under "Required Tests" Practicum Syllabus. Also, for each optional task performed (see "Optional Tests" in the Practicum Syllabus), complete the form in the spaces provided.

C = Competent (entry-level) = successfully completes the assigned task to the degree indicated
 CE = entry-level competence exceeded

The student must be competent (performance "Met" or "Exceeded") in all required tasks.

Required Tasks (± 10%)	Minimum Number	Performance			Evaluation C or CE	Comments: Required for all tasks evaluated as CE
		Not Met	Met	Exceeded		
Platelet Counts, est. & performed	10					
ESR	10					
Prep. of Bld. Smears	20					
Complete Blood Smear Examination (including differentials) - Normal	50					
Complete Blood Smear Examination (including differentials) - Abnormal	50					
Scattergram and Histogram Interpretation	50					

Prothrombin times/INR	25					
Activated Partial Thromboplastin Times	25					
Fibrinogen Assay	3					
D-Dimers	3					
Body Fluids Exam. (counts & microscopics)	10 (var. sources)					
Optional Tests (± 10%) Perform/Observe tests on the optional list below.						
		Performed (P)/Observed (O)				
			Met	Exceeded		
Bone marrow slide preparation						
Sugar water test						
Ham's test						
Buffy coat differential						
Hematocrits						
Preparation of blood smears for routine differentials on newborns						
Thrombin time						
Protamine sulfate						
Factor assay						
Bleeding time (automated)						

Glucose -6-PD						
Hemoglobin						
FCM - CD4/CD8						
Activated Protein C- Factor V Leiden						
Protein C - Function & Ag.						
Eosinophil counts						
Platelet Aggregation						
Ristocetin Co-factor						
Kleihauer-Betke stain						
Reticulocytes (staining & counting)						
Sickle Cell Screening						
Other Tests						
Identify reference range for each of the above						
Select appropriate supplies for assays						

Identify/validate specimens						
Employ safe laboratory practices						
Perform computer related functions						
Calibrate/Operate the following instruments according to standard protocol.						
Multiparameter Hematology Analyzer						
Slide Stainer						
Microscope						
Automated Coagulation Instrumentation						
Semi-automated Coagulation Instrumentation						
Explain the principle of operation of the above						
Identify/isolate/troubleshoot procedural errors						
Identify normal and abnormal blood cells						
Apply appropriate calculations/correlate data						

Demonstrate the ability to recognize analytical errors						
Identify/follow QC/QA procedures						
Validate accuracy of test results						
Prescribe appropriate action when controls are unacceptable						
Assess clinical significance of test results						
Correlate data, identify specific disease states						
Suggest additional tests for definitive diagnoses						

Clinical instructors please complete:

- THIS Form**
- Grade Form**
- Affective Behavior/Professional Characteristics Form**
- Oral Presentation Evaluation Form**

Return all forms via email (preferred) to: Rachel Childs at rchilds@odu.edu
or via Fax: (757) 683-5028

Old Dominion University

Medical Laboratory Science

MLS 406

CLINICAL MICROBIOLOGY PRACTICUM

COURSE DESCRIPTION

Direct clinical experience offered in isolating and identifying human pathogens such as bacteria, fungi, viruses and parasites from various clinical specimens.

CONTACT INFORMATION

Angela M. Wilson, M(ASCP): amwilson@odu.edu

GOAL

Students will apply knowledge obtained during microbiology, bacteriology as well as parasitology/mycology virology didactic courses in clinical setting and accurately interpret clinical data pertinent to microbial disease diagnosis.

Expectations of the following behaviors are the same as outlined for preclinical courses unless superseded by Clinical Course Policies:

Attendance

Communication Skills

Preparation

Conduct

Honor Code

I. INTRODUCTION

Clinical Microbiology (MLS 406) is a 5-credit hour clinical rotation at an affiliated local hospital. All students will cover pre-analytical, analytical and post-analytical aspects of testing during their clinical microbiology laboratory rotation. As of 2018 selected students will complete part of Clinical Microbiology Practicum in the ODU Clinical Microbiology Practicum Simulation Lab. Specific subjects covered in the simulation lab include:

- Anaerobic Bacteriology
- Mycobacteriology
- Mycology
- Parasitology
- Microscopy

Specific subjects covered at an affiliated hospital clinical site include:

- Routine Bacteriology
- Virology
- Serology
- Microscopy
- Molecular testing

The student is expected to enter the rotation with a basic knowledge of the theory of laboratory isolation and identification of the microorganisms in each specific subject area. This information is taught in the University courses MLS 307, 308, 309, 319, 339, and 340.

A minimum grade of "C" based on the following scale must be obtained in all listed areas.

A	93-100
B	86-92
C	76-85
D	65-75
F	below 65

A Clinical Professional Evaluation form will be completed by the clinical site instructor at the end of the student rotation with the assignment of a grade of PASS or FAIL (P/F). A grade of "P" must be attained on the Professional Evaluation with all behavioral criteria met or exceeded.

References

1. Mahon, C.R., Lehman, D.C., & Manuselis, G. (2015). *Textbook of diagnostic microbiology*. (5th ed.). Philadelphia, PA: W.B. Saunders Co.
2. Rowland, S. S., Walsh, S. R., Teel, L. D. & Carnahan, A. M. (1994). *Pathogenic and clinical microbiology: A laboratory manual*. Boston, MA: Little, Brown & Co.
3. Leventhal, R. & Cheadle, R.F. (2012). *Medical parasitology: A self-instructional text*. (6th ed.). Philadelphia, PA: F.A. Davis Co.
4. Kern, M. E. & K. S. Blevins. (1997). *Medical mycology: A self-instructional text*. (2nd ed.). Philadelphia, PA: F. A. Davis Co.

COMPETENCIES

- A. Operationalize mechanisms for the procurement, processing, and analysis of microbiological specimens.
- B. Demonstrate knowledge of procedure for handling improperly collected/handled specimens.
- C. Demonstrate knowledge of appropriate media used for each specimen type.
- D. Demonstrate proper inoculation, isolation and quantitation techniques for microbiology specimens.
- E. Perform and interpret Gram stains.
- F. Identify colonial characteristics of normal flora and pathogens from various body sites.
- G. Identify specific isolates based on Gram stain, microscopic morphology, colonial morphology, and biochemical reactions for clinically significant microorganisms.
- H. State principle, perform and interpret the differential biochemical tests used in the microbiology laboratory.
- I. Determine the appropriate environmental conditions for each type of specimen plated.
- J. Discuss the theory and perform any rapid identification tests used in the specific laboratory.
- K. Perform serological procedures routinely used in the microbiology laboratory.
- L. Process routine blood cultures.
- M. Perform appropriate work-up procedure for positive blood cultures and other sterile body fluids.

- N. State principle, perform and interpret antimicrobial susceptibility tests.
- O. Draw correlations between the more commonly isolated organisms and their expected susceptibility patterns.
- P. State principle, and operation of any automated equipment used in the specific microbiology laboratory.
- Q. Initiate and perform preventative maintenance, identify equipment and instrument problems, and institute corrective action.
- R. Perform quality assurance procedures on all equipment, media, and tests.
- S. Demonstrate knowledge of safe work practices such as autoclave operation, specimen disposal, and universal precautions. Utilize computer-based technology for input and retrieval of data and instrument operation.
- T. Demonstrate professional characteristics and conduct with laboratory personnel, other health care professionals, and patients.

BEHAVIORAL OBJECTIVES

Cognitive/Psychomotor

After completing this clinical practicum course, studying assigned materials, procedures and methodologies, and performing assigned tasks, the student will be able to demonstrate an overall achievement of $\geq 76\%$ on written and practical evaluations.

A. General

The student should be able to:

1. Assist and advise medical personnel in the proper collection and transport of specimens.
2. Process all appropriate clinical specimens to ensure the optimal recovery and identification of microorganisms.
3. Assist in bookkeeping, recording, reporting of results, and computer operation.
4. Perform appropriate quality control on all reagents, media, and equipment and how to initiate proper corrective action for QC failure.
5. List criteria for evaluating specimen quality and solve problems arising from improper collection and/or labeling.
6. Select the appropriate media and demonstrate proper inoculation and isolation procedures for specimens submitted for microbiological analysis.
7. Determine the appropriate environmental conditions for each type of specimen plated.
8. Perform the various staining procedures (e.g. Gram, acridine orange, acid-fast, trichrome etc.) used in the specific laboratory and correctly interpret the results.
9. Operate, maintain, and perform routine maintenance on all instruments and equipment.
10. Discuss the theory and perform any rapid identification tests used in the specific laboratory.
11. Identify those organisms established by hospital infection control as well as state and federal bureaus which require notification.

12. Demonstrate safe techniques in handling the disposal of infectious materials according to laboratory protocol.

B. Bacteriology

The student should be able to:

1. State the expected presence or absence of microbial flora from a given source.
2. Name the most likely pathogens from a given source.
3. Describe the procedures used for the quantitation of organisms isolated from routine cultures and urine colony counts.
4. State the principles of any biochemical tests including disks, strips, and serological tests used in the identification of an isolate.
5. Explain the significance of a positive blood culture, CSF, or other body fluid/tissue specimen.
6. Discuss the susceptibility tests including Kirby-Bauer disk diffusion, MIC/MBC, beta-lactamase, and any automated procedures.
7. Recognize the colony characteristics of pathogens and normal flora from the various body site specimens submitted for analysis.
8. Identify significant isolates from specimens using the appropriate laboratory protocols.
9. Initiate the steps to be taken if an identification cannot be made (i.e. further testing, reference lab submission, consultation with physician etc.).
10. Draw correlations between the more commonly isolated organisms and their susceptibility patterns including the usual drugs of choice.
11. Recognize unusual resistance patterns and handle according to established protocol.
12. Discuss the value of testing body fluids for bacterial antigens.
13. Perform serologic testing for bacterial identification utilizing automated instruments and rapid testing kits.

In addition, the student should be able to:

1. Discuss identification systems used in the specific laboratory.
2. Process routine blood cultures according to specific lab procedures.
3. Discuss any automated blood culture systems used in the specific laboratory.
4. Follow up a positive blood culture and CSF including notification and preliminary reporting procedures.
5. Discuss various molecular techniques.
6. Discuss specimen collection/integrity/processing employed in molecular diagnostic methodologies.

7. Identify instruments used in the performance of molecular methods.
8. Describe the principle of operation of each of the instruments.
9. Prepare test samples and controls for molecular analysis according to established guidelines.
10. Employ quality control/assurance measures related to molecular identification methodologies.
11. Perform analyses as assigned by the instructor.
12. Interpret the results of each method as they relate to the presence or absence of microbes.
13. Discuss the sentinel microbiology laboratories' role in the handling of suspected agents of bioterrorism.

Students are expected to rotate through the following areas of microbiology if the specific laboratory offers such services:

C. Anaerobes

The student should be able to:

1. Discuss the basic principles of anaerobiosis.
2. Process anaerobic cultures.
3. Set up the system used to create an anaerobic environment (GasPak, Bio-Bags, anaerobic chamber etc.).
4. Discuss methods of anaerobic identification according to the specific laboratory.
5. Recognize potential pathogens by their gross morphology on special plating media.

D. Mycobacteriology

The student should be able to:

1. Differentiate the clinical agents of pulmonary and extrapulmonary mycobacterial disease.
2. Demonstrate precautions required in dealing with patients and / or specimens suspected of having mycobacteria.
3. Discuss decontamination and concentration methods including advantages and disadvantages of each.
4. Discuss current mycobacterial identification technologies (ex. DNA probes).
5. Process TB specimens for reference labs for speciation and susceptibility testing.
6. Recognize a positive AFB culture.

7. State screening tests for mycobacteria including the procedures involved in speciation.
8. Discuss procedures involved in susceptibility testing and current recommendations for chemotherapy.
9. Identify the types of media used to culture mycobacteria.
10. Classify the *Mycobacterium* species according to the Runyon classification.

E. Mycology

The student should be able to:

1. State the special safety considerations required in a mycology lab.
2. Perform a direct examination of a specimen using one of the following methods: saline wet mount, LPCB wet mount, KOH prep, India ink, calcofluor white.
3. Discuss the fungal media used in the specific laboratory as well as incubation conditions.
4. Discuss three methods used to examine fungal cultures (slide culture, tease mount method, cellophane tape method, coverslip sandwich technique) including the advantages and disadvantages of each and perform one method.
5. Identify the macroscopic and microscopic morphology of various fungi.
6. Identify fungi using the laboratory's standard operation procedure.
7. Evaluate the clinical significance of fungal isolates considering the source of the specimen and the patient's condition.

F. Parasitology

The student should be able to:

1. Discuss the types of specimens required for parasite identification including those for malaria, intestinal and tissue parasites.
2. Discuss the use of proper transport media including the advantages and disadvantages of the more commonly used preservatives.
3. Discuss the purpose of the macroscopic exam and state the procedures used in the microscopic exam including direct wet mounts, concentration methods, and permanent stains.
4. Perform a concentration procedure.
5. Prepare thick and thin blood films for the detection of blood parasites.
6. Discuss immunologic tests available for parasite detection (complement fixation, direct agglutination, direct and indirect immunofluorescence, ELISA).
7. Discuss newer techniques for the diagnosis of parasitic diseases. (DNA probes, DNA restriction fragment length polymorphisms (RFLP), flow cytometry, & PCR).

8. Discuss the parasites that would normally be found in the following: urine, stool, sputum, urogenital tract, biopsy material, spinal fluid, perianal folds.
9. Identify the diagnostic stages for hemoflagellates, malaria, intestinal protozoa, helminths and recognize pseudoparasites.
10. Discuss alternative stains for the detection of *Cryptosporidium*, *Microspora*, *Pneumocystis*, and *Cyclospora*.

G. Virology and Chlamydiology

The student should be able to:

1. Discuss specimen collection and transport
2. Discuss various culture techniques.
3. List commonly isolated viruses.
4. Discuss rapid techniques available for viral testing.
5. Discuss specimen collection, transport, isolation and identification procedures for Chlamydia and Mycoplasma/Ureaplasma.

Affective:

1-12 must be “MET” or exceeded according to established evaluation guidelines.

POLICY COMPLIANCE

1. Demonstrate an appreciation for the value and necessity of maintaining an orderly and safe laboratory environment by adhering to OSHA safety regulations, program and facility safety policies, and to practices outlined by the instructor.
2. Display professional/workplace responsibility by adhering to guidelines and policies outlined by the program, individual courses, and affiliated clinical facilities.

PROMPTNESS/ATTENDANCE

3. Develop the highly valued professional characteristic of maintaining a blemish free attendance and punctuality record by reporting to classes, laboratories, and assigned clinical sites on time, notifying instructors/supervisors promptly when absence is anticipated and meeting all established deadlines.

INITIATIVE

4. Display appropriate initiative and motivation in all academic and practical performances by completing both assigned and unsolicited tasks satisfactorily, addressing problems or interferences appropriately.

RESPONSIBILITY

5. Demonstrate an appreciation of the role of active participation in the education process by displaying preparedness and engagement in the classroom, laboratory, and clinical learning environments.
6. Display professional responsibility by accepting direction, adapting to the learning environment, and completing required assignments as outlined.

RELIABILITY

7. Demonstrate the ability to maintain intellectual and emotional stability and maturity under stress, by producing results that meet appropriate performance standards.
8. Demonstrate, by attitude and performance, an appreciation of the value and importance of procedural consistency and technical accuracy and precision.

PROFESSIONAL /WORKPLACE DEMEANOR

9. Display appropriate professional/workplace decorum during both the preclinical and clinical phases of the program by complying with the guidance, instructions, and direction outlined by faculty and clinical preceptors/mentors.
10. Comply with accepted rules of conventional professional/workplace behavior during both the preclinical and clinical phases of the program by exhibiting a cooperative, respectful, and collegial demeanor in interactions with faculty, classmates, clinical preceptors/mentors, and patients.

INTEGRITY

11. Display, through appropriate professional/workplace behavior and performance, recognition and respect for honest laboratory testing, patient confidentiality, and high quality patient outcomes.
12. **Comply with the Old Dominion University Honor Code by submitting only work which is the product of one's own effort (I pledge... to be noted on submitted work).**

An **Affective Behavior/Professional Characteristics Evaluation Form** will be used to evaluate each student at the end of the full rotation with the assignment of a grade of **Pass or Fail** (P/F).

A grade of "P" must be obtained on the Professional Evaluation with all behavioral criteria met or exceeded. **A grade of "F" will be assigned if all behavioral criteria are not met.**

WRITTEN/ORAL ASSIGNMENT

The student will be able to:

1. Prepare an organized paper and presentation on an appropriate topic (assigned or selected) that represents the outcome of scholarly efforts such as literature research, special projects or case history/study analysis.

2. Deliver an in-service to staff on an assigned or selected topic utilizing guidelines and principles of professional presentations presented in pre-clinical courses.

EVALUATION

Grade percentages:

50% Written(Online)/Oral

50% Technical/Practical

A minimum grade of "C" must be attained in each of the above areas.

STUDENTS WITH DISABILITIES

Reasonable accommodations are provided for student with disabilities. Students should self-identify to the instructor as early in the semester as possible in order to establish an accommodation process: [Office of Educational Accessibility](#).

Competencies:

Students must meet or exceed all competencies. (See Competency Task List on the following pages).

Old Dominion University
Medical Laboratory Science

MLS 406 Clinical Microbiology Practicum Competency Task List

Student Name: _____

Clinical Site: _____

Evaluator(s): _____

For each of the required tasks/competencies listed below, please indicate in the appropriate column the student's degree of performance and level (C or CE) for each task. Refer to the performance requirements under "Required Tests" Practicum Syllabus. Also, for each optional task performed (see "Optional Tests" in the Practicum Syllabus), complete the form in the spaces provided.

C = Competent (entry-level) = successfully completes the assigned task to the degree indicated

CE = entry-level competence exceeded

The student must be competent (performance "Met" or "Exceeded") in all required tasks.

For the students participating in the on-campus practicum simulation program, the highlighted tasks are expected to be completed at the hospital clinical site, while the unhighlighted tasks are completed during the on-campus phase simulation program. Students not assigned to the simulation program will complete all tasks at the hospital clinical site.

Task	Minimum Number Required	Performance degree			Evaluation C or CE	Comments: Please comment on all tasks evaluated as CE
		Not Met	Met	Exceeded		
Assist and advise in proper specimen collection and handling	All					
Demonstrates knowledge of procedures for handling improper/inappropriate specimens	All					
Demonstrates knowledge of atmospheres (define ambient, anaerobic, increased CO ₂ , and microaerophilic)	All					
Determine appropriate media for initial isolation for each specimen/source	All					
Demonstrate proper inoculation, isolation, incubation, and quantitation techniques for the following:						
Clean catch urine	10					
Catheterized urine	10					

Swabs	10					
Sputum	10					
Stool	10					
Tissue	1					
CSF/Other sterile body fluids	5					
Miscellaneous	Var					
Perform and interpret gram stain from a given source including:	10					
Sputum gram stain:						
Suitability for culture						
Wounds						
Sterile Body Fluids						
Identify colonial characteristics of normal flora and pathogens from a given source:						
Urine	20					
Stool	10					
Respiratory	10					
Genital	10					
Wound	10					
Sterile body site	5					
Other	Var					
Identify specific isolates based on gram stain reaction, microscopic morphology, colonial morphology, & biochemical reactions to include:	50					
Staphylococcus aureus						
Coagulase-negative Staphylococci						
Beta-hemolytic Streptococci						
Enterococcus						
Alpha-hemolytic Streptococci						
Enterobacteriaceae						
Non-fermentative GNB						

Neisseria						
Haemophilus						
Primary intestinal pathogens including Salmonella, Shigella, Campylobacter, Vibrio						
Other: _____						
Other: _____						
State principles of biochemical tests used in identification of bacterial isolates	All					
Serotype bacteria based on serological procedures to include:						
E.coli	1					
Beta Streptococci	5					
Process routine blood cultures according to the procedure in the specific lab	25					
Perform work-up procedure for positive blood cultures & other sterile body fluids	10					
Test a body fluid for bacterial antigens	1					
State principle, perform, and interpret antimicrobial susceptibility tests:						
Kirby Bauer	5					
Beta lactamase test/screen	3					
Other methodologies: Microscan, Vitek, Pheonix	Var					
Discuss the principle of bacterial drug resistance such as MRSA, ESBL, CRE, MDRO and how it relates to antibiotic stewardship and reporting						
Draw correlations between the more commonly isolated organisms and their susceptibility patterns, including the usual antibiotic of choice	Var					
State principle, perform, & interpret any commercial identification kits used in the specific laboratory (Example API 20E)	Var					
Discuss current and emerging molecular techniques and their use						

State the principle, perform & interpret operation of any automated equipment used in the specific laboratory (Example: Vitek®, various serological, MALDI-TOF, and molecular platforms)	Var					
Demonstrate safe work practices such as autoclave, disposal of biohazards, universal precautions, etc.	Var					
Perform quality assurance (QA) procedures on equipment, media, & tests	Var					
Demonstrate knowledge of how to address QA failure	Var					
Unknown Specimens						
Demonstrate proper media selection, inoculation, incubation and quantitation techniques	Var					
Perform and accurately interpret Gram stain						
Differentiate between normal flora and pathogens present in sample	Var					
Identify isolates based on gram stain reaction, microscopic and colonial morphology, and biochemical reactions	Var					
Correctly report and discuss appropriate antibiotics for pathogens identified	Var					

If the facility offers any of the procedures listed on the following pages, the student may be required to perform each task specified. Check those tasks that apply.

MLS 406 Optional Tasks	Minimum Number*	Performance Degree			Evaluation C or CE	Comments: Please comment on all tasks evaluated as CE
		Not Met	Met	Exceeded		
Anaerobes						
Discuss proper specimen, collection, and transport of anaerobic cultures						
Select proper media selection for anaerobic cultures						
Establish anaerobic environment for culture (GasPak, Bio-Bags, etc.)						
Recognize microscopic and colonial morphology of normal flora and potential pathogens						
Mycobacteriology						
Discuss safety precautions for both patients and specimens						
Process specimens including digestion and decontamination procedures						
Perform and read acid fast stains, modified acid-fast stains and fluorescent stains						
Identify isolates based on colonial and biochemical characteristics						
Perform and/or discuss anti-mycobacterial susceptibility testing and therapy						
Identify mycobacterial culture media						
Classify the Mycobacteria species according to Runyoun groups						
Examine department study slides						
Mycology						
Discuss proper specimen, collection, transport & processing						
Perform wet mounts (KOH, India Ink, or LPCB)						

Perform and read slide culture						
Identify morphological features of clinically significant fungi						
Identify and select proper fungal media for a given source						
Discuss clinical significance of fungal isolates from a given source and patient						
Identify molds and yeast following the procedures used in the lab						
Examine department study slides						
Parasitology						
Discuss proper specimen, collection, and processing						
Perform a concentration procedure						
Prepare fecal smears (direct smear, iodine prep, concentrated smears, & permanent smears)						
Prepare thick and thin blood smears for hemoflagellates						
Examine departmental study slides						
Recognize diagnostic stages of the following:						
intestinal protozoa						
Hemoflagellates						
Malaria						
Helminths						
Coccidian						
Virology						
Discuss proper specimen, collection, transport & processing						
Describe clinically significant viruses						
Perform and/or discuss identification methods (serology, molecular methods)						

Other						
Perform manual D-test, ESBL confirmation, E-test						
Discuss role of Sentinel Laboratory in the Laboratory Response Network						
Discuss proper specimen, collection, transport & processing of suspected agents of bioterrorism						

* The minimum number is one for each optional task performed at a specific laboratory.

Clinical instructors please complete:

- THIS Form**
- Grade Form**
- Affective Behavior/Professional Characteristics Form**
- Oral Presentation Form**

Return all forms via email (preferred) to Angela Wilson at amwilson@odu.edu or via Fax: (757) 683-5028

Old Dominion University

Medical Laboratory Science Program

MLS 452

CLINICAL BIOCHEMISTRY PRACTICUM

COURSE DESCRIPTION

Direct clinical experience offered in automated and manual clinical chemistry determinations with emphasis on the principles, instrumentation, interpretation, and diagnostic significance.

CREDIT HOURS – 5

COURSE DIRECTOR: Peter Mollica, PhD
EMAIL: pmollica@odu.edu
Phone: (757) 683-3016

I. INTRODUCTION

Clinical Biochemistry Practicum is a five-week, hospital-based course designed to follow MLS 324/325 (Instrumentation lecture and lab) & MLS 351 (Biochemistry lecture) which are based at the University. The course is designed to give the student practical experience in a generalized chemistry laboratory. During the practicum, the student will develop new practice-oriented skills as well as build on the skills introduced during the didactic portion of the curriculum. The student is expected to come into the practicum with a solid foundation of the theoretical and technical aspects of a chemistry laboratory and will be expected to apply this knowledge during the practicum. The student may also be given additional information, assigned readings and projects during the rotation. Upon completion of the practicum, the student will have acquired the skills and competencies required of an entry-level Medical Technologist in a typical Clinical Chemistry laboratory.

GOAL

Students will perform both automated and manual procedures in a clinical laboratory setting, correlate laboratory results with specific disease and non-disease states. An emphasis is placed on instrumentation principles used in chemical analysis. The student will gain understanding of the full scope of services provided in a clinical chemistry laboratory.

Expectations of the following behaviors are the same as outlined for preclinical courses unless superseded by Clinical Course Policies:

Attendance

Communication Skills

Preparation

Conduct

Honor Code

STUDENTS WITH DISABILITIES

Reasonable accommodations are provided for students with disabilities. Students should self-identify to the instructor as early in the semester as possible in order to establish an accommodation process. See accessibility site: <http://www.odu.edu/educationalaccessibility>

II. REFERENCES

Sunheimer and Graves, "Clinical Laboratory Chemistry", Pearson, Second Edition, 2016

Doucette, "Mathematics for the Clinical laboratory", Elsevier, Third Edition, 2016

III. COMPETENCIES

1. Operationalize mechanisms for the procurement, processing, and analysis of chemistry specimens.
2. Demonstrate knowledge of procedures for handling improperly collected/handled specimens.
3. Perform standard analytical testing on serum, plasma, urine and other body fluids.
4. Properly analyze quality control and patient samples and demonstrate the knowledge of procedures for evaluating generated data.
5. Demonstrate ability to institute corrective actions for problems related to verification of discrepant patient results, quality control data, and quality assurance issues.
6. Demonstrate appropriate skills in the daily assessment, operation and routine maintenance of automated instrumentation.
7. Appropriately identify instrument problems, initiate and perform preventative maintenance and institute corrective action.
8. Utilize computer-based technology for input, verification and retrieval of data and instrument operation.
9. Demonstrate ability to correlate patient data with clinical diagnosis.
10. Demonstrate professional characteristics and conduct with laboratory personnel, other health care professionals, and patients.

IV. BEHAVIORAL OBJECTIVES

Cognitive/Psychomotor

After completing this clinical practicum course, studying assigned materials, procedures and methodologies, and performing assigned tasks, the student will be able to demonstrate an overall achievement of $\geq 76\%$ on written and practical evaluations.

A. General

The student will be able to:

1. Properly process specimens to include distribution to appropriate work areas. List criteria for evaluating specimen quality and, according to protocol, identify and evaluate patient specimens in regard to their acceptability for analysis.
2. Identify precautions and/or special handling techniques for particular procedure requests.

3. Assist in bookkeeping, recording, verification of results, and computer operation according to established clinical chemistry protocol.
4. Select appropriate reagents and/or kits as needed for analytical procedures and determine appropriate substitutes for unavailable supplies.
5. Assist in the daily operation of the chemistry analyzers to include performing routine maintenance, analyzing, evaluating and reporting quality control and patient data and troubleshooting.
6. Perform appropriate computer related functions where applicable.
7. Identify the areas in the laboratory where safety equipment is located and demonstrate basic knowledge of operation for each piece of equipment.
8. Identify sources of potential biohazard in the lab and recognize unsafe laboratory practices. Employ appropriate safeguards as outlined in the departmental procedure manual.
9. Demonstrate knowledge of PPE and the Bloodborne Pathogen Standard.
10. State appropriate safety procedures for various laboratory accidents and demonstrate knowledge of proper protocol for reporting and handling exposure incidents.
11. According to laboratory protocol, demonstrate safety techniques in the handling and disposal of infectious materials.

B. Instrumentation

For each analyzer employed by the clinical site, the student will be able to:

1. State the principle of operation of each analyzer.
2. Identify the essential components of each analyzer and explain the function of each component.
3. Demonstrate working knowledge of the reagents used on each analyzer and appropriately prepare and replace reagents as needed.
4. Demonstrate ability to properly operate each analyzer according to laboratory protocol to include calibration and specimen analysis.
5. Perform routine maintenance on each analyzer according to laboratory protocol.
6. Correctly recognize equipment malfunctions and identify appropriate steps to successfully troubleshoot the analyzer.
7. Demonstrate a basic knowledge of the statistics involved in the analysis of quality control data.
8. Correctly perform and report quality control data on each analyzer according to laboratory protocol.
9. Appropriately analyze quality control data according to site-specific protocol. Demonstrate ability to recognize and handle data that falls outside of established limits.

10. Validate the accuracy of test results based on assessment of obtained quality control data.
11. Demonstrate proper knowledge of the storage and stability requirements for quality control and calibrator materials.
12. Recognize and identify the basic criteria of a good quality assurance program.

C. Testing Methodologies

The student will be able to:

1. Describe the principle of each of the following methodologies and identify which analyzers at the clinical site employ each methodology.
2. Identify which analytes are being tested at the clinical site using each methodology.
 - a. Spectrophotometry
 - b. Potentiometry/ISE
 - c. Fluorimetry
 - d. Osmometry
 - e. Enzyme Kinetics
 - f. Immunoassays (i.e. EIA, ELISA)
 - g. Nephelometry
 - h. Chemiluminescence
 - i. Electrophoresis
 - j. Chromatography
 - k. Atomic Absorption

*The student should be able to discuss the above methodologies even if the tests are not performed on site.

D. Testing Procedures

The student will be able to:

1. Perform each test procedures listed below according to site-specific protocol.
2. For each test procedure, explain the chemical principle used to measure the analyte.
3. Demonstrate a basic working knowledge of the analytes included in each of the following chemistry panels and in any additional panels used at the clinical site.
 - a. BMP
 - b. CMP
 - c. Electrolyte Panel
 - d. Liver Panel
 - e. Thyroid Panel
 - f. Cardiac Panel
 - g. Lipid Panel
4. Become familiar with the reference range for each analyte. State specific reference ranges as determined by the clinical instructor.
5. Evaluate and report patient results according to site-specific protocol.

6. Demonstrate ability to identify erroneous patient results and institute the appropriate corrective action.
7. Demonstrate ability to evaluate abnormal patient results and correlate the results to a possible clinical diagnosis.
8. Correlate results from various tests on the same patient to aid in determining a possible clinical diagnosis.
9. Identify and perform any back-up methods for the analytes being measured.
10. As determined by the clinical instructor, perform the following calculations using patient data
 - a. creatinine clearance
 - b. osmolality
 - c. anion gap
11. Perform testing on unknown samples as determined by the clinical instructor.
12. Demonstrate proper knowledge of the storage and stability requirements for each specimen.
13. The student must demonstrate proficiency in each of the following test procedures:

Required

- a. Glucose/HgbA1C
- b. Electrolytes
- c. Total Protein
- d. Albumin
- e. AG Ratio
- f. Urine Protein
- g. Microalbumin
- h. Uric Acid
- i. BUN
- j. Creatinine
- k. Ammonia
- l. Total Bilirubin
- m. Direct Bilirubin
- n. Iron
- o. TIBC
- p. Ferritin
- q. HDL
- r. LDL
- s. Triglycerides
- t. Cholesterol
- u. Liver enzymes
- v. Amylase
- w. Lipase
- x. Cardiac Markers**

- y. Therapeutic Drug Monitoring**
- z. Drugs of Abuse**
- aa. Endocrinology**

**perform testing as appropriate to each clinical site

14. The student will demonstrate competency in the following optional test procedures as applicable to each clinical site (“optional” at the assigned site -may need to perform at another site as part of “special chemistry” days):

1. POCT
2. Serum Proteins
 - a. Transferrin
 - b. Haptoglobin
 - c. Ceruloplasmin
 - d. Immunoglobulins
 - e. α -1 Antitrypsin
 - f. Prealbumin
 - g. CRP
3. Fetal Lung Maturity
4. Serum & CSF Electrophoresis
5. Immunofixation
6. Toxicology
7. Blood Gases
8. Acid Phosphatase
9. Tumor Markers
10. Esoteric Endocrinology Tests

E. Molecular Diagnostics

The student will be able to:

1. Discuss specimen collection/integrity/processing employed in molecular diagnostic methodologies if encountered during clinical chemistry rotation.
2. Identify extra/special specimen precautions and considerations employed in a molecular diagnostic laboratory compared to the general clinical laboratory.
3. Identify instruments used in the performance of molecular diagnostic methods.
4. Describe the principle of operation quality control/assurance issues related to the instruments in #3.

Affective:

1-12 must be “MET” or exceeded according to established evaluation guidelines.

POLICY COMPLIANCE

1. Demonstrate an appreciation for the value and necessity of maintaining an orderly and safe laboratory environment by adhering to OSHA safety regulations, program and facility safety policies, and to practices outlined by the instructor.

2. Display professional/workplace responsibility by adhering to guidelines and policies outlined by the program, individual courses, and affiliated clinical facilities.

PROMPTNESS/ATTENDANCE

3. Develop the highly valued professional characteristic of maintaining a blemish free attendance and punctuality record by reporting to classes, laboratories, and assigned clinical sites on time, notifying instructors/supervisors promptly when absence is anticipated and meeting all established deadlines.

INITIATIVE

4. Display appropriate initiative and motivation in all academic and practical performances by completing both assigned and unsolicited tasks satisfactorily, addressing problems or interferences appropriately.

RESPONSIBILITY

5. Demonstrate an appreciation of the role of active participation in the education process by displaying preparedness and engagement in the classroom, laboratory, and clinical learning environments.
6. Display professional responsibility by accepting direction, adapting to the learning environment, and completing required assignments as outlined.

RELIABILITY

7. Demonstrate the ability to maintain intellectual and emotional stability and maturity under stress, by producing results that meet appropriate performance standards.
8. Demonstrate, by attitude and performance, an appreciation of the value and importance of procedural consistency and technical accuracy and precision.

PROFESSIONAL /WORKPLACE DEMEANOR

9. Display appropriate professional/workplace decorum during both the preclinical and clinical phases of the program by complying with the guidance, instructions, and direction outlined by faculty and clinical preceptors/mentors.
10. Comply with accepted rules of conventional professional/workplace behavior during both the preclinical and clinical phases of the program by exhibiting a cooperative, respectful, and collegial demeanor in interactions with faculty, classmates, clinical preceptors/mentors, and patients.

INTEGRITY

11. Display, through appropriate professional/workplace behavior and performance, recognition and respect for honest laboratory testing, patient confidentiality, and high quality patient outcomes.
12. Comply with the Old Dominion University Honor Code by submitting only work which is the product of one's own effort (**I pledge... to be noted on submitted work**).

An Affective Behavior/Professional Characteristics Evaluation Form will be used to evaluate each student at the end of the full rotation with the assignment of a grade of Pass or Fail (P/F).

A grade of "P" must be obtained on the Professional Evaluation with all behavioral criteria met or exceeded.

A grade of "F" will be assigned if all behavioral criteria are not met.

V WRITTEN/ORAL ASSIGNMENT

The student will be able to:

1. Prepare an organized paper and presentation on an appropriate topic (assigned or selected) that represents the outcome of scholarly efforts such as literature research, special projects or case history/study analysis.
2. Deliver an inservice to staff on an assigned or selected topic utilizing guidelines and principles of professional presentations presented in pre-clinical courses.

VI EVALUATION:

Grade percentages:

50% - Written(Online)/Oral (Tests, Projects, Paper)

50% - Technical/Practical

A minimum grade of "C" based on the following scale must be attained in each of the above areas.

- A 93-100
- B 86-92
- C 76-85
- D 65-75
- F Below 65

Competencies: Students must meet or exceed all competencies. (See Competency Task List on the following pages).

Old Dominion University
Medical Laboratory Science Program

MLS 452 Clinical Biochemistry Practicum Competency Task List

Student Name: _____

Date: _____

Clinical Site: _____

Instructions:

- 1) A separate checklist must be completed **for each major instrument** utilized in clinical chemistry at the clinical site.
- 2) For each of the tasks/procedures listed, indicate the method of evaluation and the level of competence by completing the form in the spaces provided. Attach additional documentation where appropriate.
- 3) The student must be competent in all assigned tasks to pass the competency evaluation.
- 4) Student may demonstrate ability in one manual back-up procedure for the automated chemistry analyzer(s).

Example:

Instrument: Name of instrument

Analytes: BMP

Task	Method of Evaluation			Evaluation:			Comments: (Required for all tasks evaluated as CE or not met)
	Operation/ Performance	Comparison of Results	Observation/ Review	C	CE	Not Met	
Instrument Theory of Operation	X			X			

Key:

C = Competent (entry-level) = successfully completes the assigned task within the degree indicated

CE = entry-level competence exceeded

Old Dominion University
Medical Laboratory Science Program
MLS 452 Competency Task List

Instrument: _____

Analyte(s): _____

Evaluator/s: _____

Task	Method of Evaluation			Evaluation:			Comments: (Required for all tasks evaluated as CE or not met)
	Operation/ Performance	Comparison of Results	Observation/ Review	C	CE	Not Met	
Instrument Theory of Operation							
Physiological Significance of Tests							
Instrument Methodologies							
Instrument Calibration							
Preventative Maintenance							
Reagent Preparation							
Reagent Storage, and Stability							
Sample Preparation and Handling							
Accurate Verification of patient results							
Identify discrepant patient results & variables affecting results							
Identify Reference Ranges for each major analyte							
Knowledge of appropriate calculations							
Knowledge of Back-up Methodologies for each primary analyzer							
Analysis of Quality Control Data							
Identify and take appropriate action for QC data that is not within established limits							
Correlation with other clinical lab results							
Correlation with pathological conditions							
Trouble-shooting Techniques							

Knowledge of Biohazards and Safety							
Statistical Knowledge of Method Comparison							

Clinical instructors please complete:

- THIS Form**
- Grade Form**
- Affective Behavior/Professional Characteristics Form**
- Oral Presentation Form**

Return all forms via email (preferred) to: Dr. Peter Mollica at pmollica@odu.edu

or via Fax: (757) 683-5028

Old Dominion University

Old Dominion University

MEDICAL LABORATORY SCIENCE PROGRAM

MLS 454

CLINICAL IMMUNOHEMATOLOGY PRACTICUM

COURSE DESCRIPTION

Direct clinical experience offered in the theories and principles of blood banking with emphasis on the instruction of technical procedures used in an AABB approved blood bank. (This course is offered on campus in an accelerated format followed by a 2-week rotation at an assigned clinical site.)

GOAL

Students will apply knowledge obtained of *in vivo* and *in vitro* blood cell antigen/antibody interactions, and accurately interpret serologic and clinical data in the procurement, selection, and preparation of safe transfusion products.

CONTACT INFORMATION

Cristina S. Ruffy, MT(AMT), direct practicum oversight: cristina.f.ruffy.civ@mail.mil (preferred), cruffy@odu.edu

Barbara Kraj, PhD, MLS(ASCP)^{CM}, MB^{CM}, ODU MLS Program director: bkraj@odu.edu ; phone: 757-683-6039

STUDENTS WITH DISABILITIES

Reasonable accommodations are provided for student with disabilities. Students should self-identify to the instructor as early in the semester as possible in order to establish an accommodation process through the [Office of Educational Accessibility](#) .

TEXTBOOK

Harmening, D.M. (2019). *Modern blood banking and transfusion practices* (7th ed). Philadelphia: F.A. Davis.

Note: Additional references are available at the clinical site.

Expectations of the following behaviors are the same as outlined for preclinical courses unless **superseded** by Clinical Course policies.

Attendance
Communication
Preparation
Conduct
Honor Code

I. INTRODUCTION

This course is designed to follow the prerequisite University- based course, MLS 326/336 (Immunohematology lecture and laboratory). This course emphasizes the refinement of basic technical skills, the development of new practice-oriented skills and the enhancement of the theoretical foundation that the student possesses. At the completion of this course, students will be able to demonstrate the competencies that should be possessed by an entry-level laboratory scientist in a typical Blood Bank. **A pre-test will be administered at the beginning of this practicum.**

II Competencies

- A. Operationalize mechanisms for the procurement, identification, processing, and analysis of blood bank specimens.
- B. Perform, according to standards, serological testing of donor and recipient samples providing safe transfusion events.
- C. Recognize testing and clerical discrepancies and irregularities when processing donor and recipient samples.
- D. Employ approved standards and procedures when evaluating donor and recipient status.
- E. Employ proper quality control procedures in the identification, testing, and labeling of donor/component units and recipient samples.
- F. Institute preventive and corrective action, according to standards, designed to ensure accurate sample processing, component selection and processing, and transfusion.
- G. Employ approved record keeping procedures to ensure the provision of safe therapeutic blood products.
- H. Research and develop a relevant blood banking topic and deliver a presentation to department colleagues.
- I. Demonstrate professional characteristics and conduct with laboratory personnel, other health care professionals, and patients.

III. BEHAVIORAL OBJECTIVES

Cognitive/Psychomotor

After completing this clinical practicum course, studying assigned materials, mastering procedures and methodologies, and performing assigned tasks, the student will be able to demonstrate an overall achievement of $\geq 76\%$ on written and practical evaluations with stated accuracy on practical evaluations.

A. General - The student will be able to:

1. Identify critical measures that ensure accurate and reliable pre-analytical, analytical, and post-analytical processing of patient and donor samples
2. Identify/employ established procedures in the identification and processing of patient samples, donor units, and components. Distinguish acceptable from non-acceptable specimens.

3. Identify precautions and/or special handling techniques for routine and special requests.
4. Select the appropriate reagents as needed for specific and routine tests.
5. Identify sources of biohazard and employ safeguards as outlined by OSHA regulations.
6. Identify/employ criteria established for adequate and correct record keeping.
7. Outline basic quality control procedures.
8. Identify medico-legal issues in Blood Bank.
9. Employ safeguards related to medico-legal issues as outlined by laboratory procedures and policies.
10. Demonstrate compliance with all laboratory and hospital policies.
11. Perform computer related functions where applicable, including data input, retrieval and storage.
12. Demonstrate affective behavior/professional characteristics and conduct by achieving a "met" or "exceeded" for each at terminal evaluation.

B. Blood Group Serology - The student will be able to:

1. Explain or define basic immunologic terms and principles.
2. Distinguish the structural, serological and physical properties of IgG and IgM immunoglobulins.
3. Identify conditions and techniques that influence antigen-antibody reactions for the purpose of detection and/or elimination of clinically significant antibodies.
4. Identify conditions that interfere with the interpretation of antigen antibody reactions.
5. Identify the pertinent serological and physical characteristics of antibodies in the ABO, Rh and significant "other" blood group systems.
6. Identify the frequency of the major antigens in the ABO, Rh and significant "other" blood group systems.
7. Explain the clinical significance of ABO, Rh and "other" blood group systems.
8. Employ knowledge of basic genetic principles in the interpretation of inheritance patterns and blood types.
9. Given problems, inconclusive or discrepant results, identify cause, suggest/employ steps and methods to achieve a resolution based on knowledge of the principles of blood group serology and characteristics of blood group antigens and antibodies.

C. ABH System - The student will be able to:

1. Given the appropriate test results on patient or donor samples, correctly interpret the ABO group.
 - a. Recognize normal, discrepant, and anomalous results.
 - b. Identify causes of discrepant and inconclusive results including:
 - 1) serum antibody problems
 - 2) red cell/antigen problems
 - 3) subgroups, e.g. A₃, A_x, A_m
 - 4) anomalous phenotypes
 - c. distinguish H antigen and its relationship to subgroups and Bombay phenotype.

- d. Identify technical sources of error.
2. Suggest/employ methods to resolve testing problems.

- a. RBC/ag tests
- b. serum/ab tests

D. Rh System - The student will be able to:

1. Given the appropriate test results on patient or donor samples, correctly interpret the Rh phenotype and/or most probable genotype.
 - a. Compare the genetic theories of inheritance of Tippet, Fisher-Race, and Wiener.
 - b. Employ the nomenclature of Fisher-Race and Wiener interchangeably.
 - c. Identify nomenclatures of Rosenfield and the ISBT.
 - d. Compare the various Rh typing procedures including reagent composition and testing limitations.
 - e. Identify/resolve sources of error.
2. Identify/explain Rh variants and anomalous phenotypes.
 - a. Wk D testing requirements
 - b. RhAG/ Rh null and mod
 - c. LW

E. ABO, Rh, and Other Blood Group Systems (to include, but not limited to Lewis, I, Kell, P, Duffy, Kidd, MNS, Lutheran, certain high frequency and low frequency antigens) - The student will be able to:

1. Analyze each blood group system with emphasis on the immunogenic potential of the antigens and the potential of antibodies to cause HTR and HDFN.
 - a. Identify symbols used to designate antigens and phenotypes.
 - b. Compare and contrast the serological and physical characteristics of antibodies in the various systems including:
 - 1) immunoglobulin class
 - 2) unique characteristics that aid in antibody identification, including but not limited to dosage, neutralization, increased serum-cell ratios, and enzymes
 - 3) complement dependency
 - 4) potential for causing HTR or HDFN
2. Evaluate antigen/antibody testing results for presumed genotype/phenotype.
3. Evaluate the clinical significance of the various blood group antibodies when selecting blood for transfusion.
4. Correlate medical history with serological results
5. Identify frequency of clinically significant antigens.

F. Antiglobulin Test (Direct and Indirect) - The student will be able to:

1. Evaluate the AGT, direct and indirect, identifying the clinical significance of the information obtained.
 - a. Explain the principle/procedure of the tests (direct and indirect), including enhancement and QC of negative results.

- b. Identify clinical conditions and situations for which the direct and indirect AGT are used.
 - c. Compare the composition and specificity of the various antiglobulin sera (polyspecific, monospecific, and anti-complement).
 - d. List sources of error.
 - e. Identify factors affecting the sensitivity of the test.
 - f. Explain the role of complement in antiglobulin reactions.
2. Evaluate the role of IgG coated cells.

G. Antibody Detection and Identification - The student will be able to:

1. Given appropriate antibody detection and identification results, correctly identify auto- and/or alloantibody(ies).
 - a. Explain the rationale of procedural steps including testing, phase requirements, methods to rule out the presence of additional antibodies, and phenotyping to confirm antibody identity.
 - b. Record results as read according to established criteria and policy.
 - c. Explain the role of the autocontrol.
2. Given inconclusive identification (panel) results, suggest/employ techniques that will allow correct identification.
3. Employ/suggest enhancement techniques and techniques that will aid in identification including but not limited to:
 - absorption
 - elution
 - inhibition/neutralization
 - enzymes
 - selected cell panel
 - antigen typing
 - temperature reduction
 - increased serum-to-cell ratio
 - increased incubation time
 - polyethylene glycol (PEG)
 - alteration of pH
 - titration
 - prewarmed technique
4. Explain the importance of medical history in identification of antibodies
5. Employ/select techniques to identify and differentiate warm and cold autoantibodies.
 - a. without underlying alloantibodies
 - b. with underlying alloantibodies.

6. Employ select techniques to identify and differentiate the various causes of drug-induced warm autoantibodies.

H. Pretransfusion Testing - The student will be able to:

1. Explain the purpose of pretransfusion testing.
2. Employ proper procedures for pretransfusion testing as outlined by laboratory policy.
3. Evaluate requirements for pretransfusion testing including but not limited to requirements for:
 - a. requests
 - b. specimens
 - i. labels
 - ii. nature
 - iii. age
 - iv. special requirements for neonates
 - v. confirming identity
 - vi. retention/storage
4. Explain the value of checking previous records
5. Explain/perform serological testing as outlined by laboratory policy
6. Interpret antibody screening and crossmatch results
7. Explain/employ "Type and Screen" policy
8. Explain/employ for compatibility testing requirements for exchange and non-exchange transfusion.

I. Compatibility Tests - The student will be able to:

1. Analyze the compatibility test with respect to purpose, required testing procedures on patient and donor samples, and expected results that are consistent with suitability for transfusion.
 - a. Discuss acceptable patient and donor samples, including identification, age, source, testing requirements, storage, etc.
 - b. Check previous records and requests for special needs including but not limited to sickle negative, CMV negative, irradiated and leukocyte reduced products.
 - c. Select the appropriate type of donor blood for testing and transfusion according to procedures as applicable to the following situations:
 - i. non-emergent requests
 - ii. emergency requests
 - iii. massive transfusion
 - iv. least incompatible
 - v. unexpected allo- and/or auto antibody(ies)
2. Employ established guidelines and policies in testing of donor and patient samples, and recording results and information.
3. Identify causes of problems and/or incompatible tests.
4. Specify/employ procedures used to resolve problems and/or incompatible results.
5. Given compatibility test problems:
 - a. identify the cause and
 - b. suggest/employ steps that will lead to a resolution.

6. Predict random number of units to screen given the recipient antibody and (frequency).
7. Identify special criteria for neonatal transfusions.

J. Transfusion Reactions - The student will be able to:

1. Compare the types of transfusion reactions with regard to clinical severity, symptoms and investigation requirements.
 - a. Identify testing requirements for transfusion reaction investigations.
 - b. Identify clerical requirements for transfusion reaction investigations.
2. Explain the rationale that governs the selection of blood for transfusions.
3. Discuss/identify transfusion transmitted viruses and the value of lookback policies.

K. Donor Selection and Processing - The student will be able to:

1. Identify criteria for selection.
2. Compare requirements for testing by the collecting agency with those of the transfusing institution.
3. Identify various anticoagulants and additives currently in use, indicating advantages, and shelf life.
4. Identify labeling, storage, and shipping requirements.
5. Compare and contrast the advantages and disadvantages of autologous versus homologous donor requirements.
6. Identify requirements for directed donor units.

L. Component Preparation and Therapy - The student will be able to:

1. Analyze each component with emphasis on the following:
 - a. Method of preparation
 - b. Maximum age requirement for preparation.
 - c. Anticoagulant used.
 - d. Shelf life.
 - e. Storage requirement.
 - f. Indications and use.
 - g. Quality control requirements
 - h. Usual dosage.
2. Given a patient's history, select the appropriate component, dosage, and filter.

M. Investigation of HDFN - The student will be able to:

1. Compare the clinical manifestations and serological characteristics of ABO, Rh and "other" HDFN.
2. Identify maternal and infant prenatal and postnatal tests used for the detection and evaluation of HDFN, including ABO, Rh, ab screen, DAT, elution, and Kleihauer- Betke acid elution.
3. Select appropriate components for transfusion, exchange and non exchange, satisfying requirements for age, quantity and type, as well as serological test results (sickle, CMV, antibody status of the mother, etc.).
4. Evaluate criteria which establishes candidacy for prenatal and postnatal RhIG
5. Calculate/select dosage of RhIG.

N. HLA Testing - The student will be able to:

1. Describe the HLA system.
 - a. explain the present system of nomenclature
 - b. identify cellular locations of antigens
2. Describe the inheritance of HLA antigens.
3. Identify the principle of the various testing procedures.
4. List the clinical applications of HLA typing.

O. Paternity Testing - The student will be able to:

1. Identify the role of blood group systems in paternity testing.
2. Differentiate criteria for direct and indirect exclusion.

P. Quality Control - The student will be able to:

1. Explain quality management practice in the transfusion laboratory including managerial components, objectives, cell/serum controls, equipment controls and routine testing intervals and frequencies.
2. Identify quality control violations that may lead to inaccurate testing results.

Specific Performance Objectives

A. General

The student will be able to:

1. Recognize correctly labeled specimens with 100% accuracy.
2. Perform/assist in routine quality assurance procedures, reagent testing, equipment monitoring and records maintenance.
3. Assist in the processing and release of blood and blood components.
4. Assist in the inventory/ordering of blood and blood components, reagents, and general operating supplies.
5. Employ measures designed to reduce pre-analytical, analytical & post-analytical variability.
6. Identify errors (preanalytical, analytical, and post analytical) in performed procedures including those due to technique, reagents, mechanical malfunction, etc.

B. Test Procedures

The student will be able to perform and complete the minimum number of tests with the accuracy indicated or those established by the instructor.

1. ABO and Rh tube type, including Wk D – test 10 with 100% accuracy.
2. Indirect Coombs- test 3 with 100% accuracy.
3. Direct Coombs –test 6 with 100% accuracy.
4. Crossmatches- test 2 with 100% accuracy.
5. Exchange Transfusion Workup- perform 1 with 100% accuracy.
6. RhIG Workup- test 2 with 100% accuracy.

7. Transfusion Reaction Workup-test 1 with 100% accuracy.
8. Antibody Identification: at least one sample is to contain a minimum of 3 antibodies.
9. Type and Screen- 2 with 100% accuracy
10. Cord Blood Workup- 2 with 100% accuracy
11. Antigen Typing:
 - a. Direct
 - b. Indirect
12. Quality Control Reagent Rack- Daily QC with 100% accuracy.
13. Processing Units- 10 in 30 minutes with 100% accuracy.
14. Elutions:
 - a. Lui Easy Freeze- 1with 100% accuracy
 - b. Acid Elution- 1 with 100% accuracy.
15. Case histories- as assigned
16. Antibody Titers- 1 with 100% accuracy.
17. Kleihauer- Betke – 1-2 slides with accuracy as assigned

C. Optional:

1. Donor workup and phlebotomy- 1 in 45 minutes
2. Component preparation
3. Viral testing
4. Slide typing
5. Neonatal transfusion workup:
 - a. exchange
 - b. non-exchange
 - i. (PUBS) Peri-umbilical blood sampling (Including ABO, Rh, DAT and other antigen typings as required to differentiate mother from fetus).
 - ii. Absorptions
 - c. warm autoabsorptions
 - d. cold autoabsorptions

Affective:

1-12 must be “MET” or exceeded according to established evaluation guidelines.

POLICY COMPLIANCE

1. Demonstrate an appreciation for the value and necessity of maintaining an orderly and safe laboratory environment by adhering to OSHA safety regulations, program and facility safety policies, and to practices outlined by the instructor.
2. Display professional/workplace responsibility by adhering to guidelines and policies outlined by the program, individual courses, and affiliated clinical facilities.

PROMPTNESS/ATTENDANCE

3. Develop the highly valued professional characteristic of maintaining a blemish free attendance and punctuality record by reporting to classes, laboratories, and assigned clinical sites on time, notifying instructors/supervisors promptly when absence is anticipated and meeting all established deadlines.

INITIATIVE

4. Display appropriate initiative and motivation in all academic and practical performances by completing both assigned and unsolicited tasks satisfactorily, addressing problems or interferences appropriately.

RESPONSIBILITY

5. Demonstrate an appreciation of the role of active participation in the education process by displaying preparedness and engagement in the classroom, laboratory, and clinical learning environments.
6. Display professional responsibility by accepting direction, adapting to the learning environment, and completing required assignments as outlined.

RELIABILITY

7. Demonstrate the ability to maintain intellectual and emotional stability and maturity under stress, by producing results that meet appropriate performance standards.
8. Demonstrate, by attitude and performance, an appreciation of the value and importance of procedural consistency and technical accuracy and precision.

PROFESSIONAL /WORKPLACE DEMEANOR

9. Display appropriate professional/workplace decorum during both the preclinical and clinical phases of the program by complying with the guidance, instructions, and direction outlined by faculty and clinical preceptors/mentors.
10. Comply with accepted rules of conventional professional/workplace behavior during both the preclinical and clinical phases of the program by exhibiting a cooperative, respectful, and collegial demeanor in interactions with faculty, classmates, clinical preceptors/mentors, and patients.

INTEGRITY

11. Display, through appropriate professional/workplace behavior and performance, recognition and respect for honest laboratory testing, patient confidentiality, and high-quality patient outcomes.
12. **Comply with the Old Dominion University Honor Code by submitting only work which is the product of one's own effort (I pledge... to be noted on submitted work).**

A grade of "P" must be attained on the Professional Characteristics Evaluation form, with all behavioral criteria met or exceeded. **A grade of "F" will be assigned if all behavioral criteria are not met.**

Note: A formative affective/behavioral evaluation is completed at the end of the on-campus phase.

IV. WRITTEN/ORAL ASSIGNMENT

The student will be able to:

1. Prepare an organized paper and presentation on an appropriate topic (assigned or selected) that represents the outcome of scholarly efforts such as literature research, special projects or case history/study analysis.
2. Deliver an inservice to staff on an assigned or selected topic utilizing guidelines and principles of professional presentations presented in pre-clinical courses.

V. EVALUATION

Grade percentages:

50% Written/Oral + 50% Technical

A **minimum grade of "C"** based on the following scale must be attained in each of the above areas:

A 93-100	D 65-75
B 86-92	F below 65
C 76-85	

Competencies: Students must meet or exceed all competencies. (See Competency Task List on the following pages).

Old Dominion University
Medical Laboratory Science Program

MLS 454 Clinical Blood Bank Practicum Competency Task List

Student Name: _____

Clinical Site: _____

Evaluator: _____

For each of the required tasks/competencies listed below, please indicate in the appropriate column the student's degree performance and level (C or CE) for each task. Refer to the performance requirements under "Test Procedures" in the Practicum Syllabus. Also, for each optional task performed (see "Optional List" in the Practicum Syllabus), complete the form in the spaces provided.

C = Competent (entry-level) = successfully completes the assigned task within the degree indicated

CE = entry-level competence exceeded

The student must be competent in all required tasks. The highlighted tasks are expected to be completed at the clinical site, while the others are completed during the on-campus phase of this practicum.

Required Tasks	Minimum/ Accuracy	Performance Degree			Evaluation: C or CE	Comments: (Required for all tasks evaluated as CE)
		Not Met	Met	Exceeded		
Identifies incorrectly labeled specimens	All					
Preparation of 5% RBC suspension	10/100					
ABO & Rh Tube Typing (including Weak D testing)	10/100					
IAT	3/100					
DAT	6/100					
Crossmatch	2/100					
Exchange Tx Workup	1/100					
RhIG workup	2/100					

Transfusion reaction workup	1/100					
Antibody Identification (single ab.)	var/100					
Antibody Identification (multiple ab.)	var/100					
Type & Screen	2/100					
Cord blood workup	2/100					
Antigen Typing	2/100					
Participates in ordering/inventory activities	Variable					
Quality Control Reagent rack	daily/100					
Processing and Release of blood and blood Components	10/100					
Lui Freeze / Thaw Elution	1/100					
Acid Elution	1/100					
Antibody Titer	1/100					
Kleihauer-Betke Acid elution stain						
Other:						
Optional Tasks						

Clinical instructors please complete:

THIS Form
Oral Presentation Form
Professional Characteristics Form

Return all forms to:

Barbara Kraj at bkraj@odu.edu
or via fax: 757-683-5028

Old Dominion University
Medical Laboratory Science Program
CLINICAL URINALYSIS OBJECTIVES

I INTRODUCTION

Clinical Urinalysis is designed to give the student practical experience in the urinalysis lab. The student is expected to come into this course with a sound background in the basic theory and techniques of urinalysis, basic knowledge of normal and abnormal physiology, clinical correlations, and microscopic technique. The student is expected to begin to correlate theory and practice and upon completion of the course, the student should be able to perform at entry level, the physical, chemical and microscopic examination of the urine. The student may also be given additional information, assigned readings and projects as determined by the clinical instructor.

II COMPETENCIES

The student will be able to:

1. Process and prepare urine and other body fluid specimens for analysis.
2. Distinguish between acceptable and unacceptable specimens received in the lab.
3. Perform routine quality control procedures per laboratory protocol.
4. Verify and report patient results to include recognizing discrepant results. Utilize computer-based technology for input and retrieval of data.
5. Institute solutions or corrective actions for problems related to specimen integrity, verification of abnormal results, quality control data, and quality assurance issues.
6. Perform any necessary calculations as determined by clinical site.
7. Assist in the maintenance of urinalysis equipment and demonstrate an ability to calibrate, operate, maintain and perform routine troubleshooting on any equipment (if available) used to include:
 - a. Automated Analyzer(s)
 - b. Osmometer
 - c. Bright field microscope
 - d. Phase contract microscope
 - e. Polarizing microscope
 - f. Centrifuge
8. Perform physical, chemical and microscopic testing on urine specimens.
9. Demonstrate professional characteristics and conduct with laboratory personnel, other health care professionals, and patients.

III Routine Urinalysis

A. Physical Examination of the Urine

The student will be able to:

1. Perform and interpret tests for specific gravity.
2. Describe the effects of interfering substances, such as glucose and protein, on the specific gravity.
3. List the normal ranges of specific gravity for urine.
4. Recognize normal and abnormal odors, color and appearance of urine. Discuss the significance of any abnormal findings and identify probable causes for these abnormalities.
5. Perform color and clarity on at least 50 urine specimens.

B. Chemical Examination of the Urine

The student will be able to:

1. Perform chemical analysis using reagent strip testing on at least 50 urine specimens, both normal and abnormal, with 100% accuracy utilizing either visual readings or automated readers.
2. State the principle, normal ranges and interfering substances of all reactions on the reagent strips utilized.
3. Perform microalbumin testing using the reagent strip method if applicable.

C. Microscopic Examination of the Urine

The student will be able to:

1. Perform at least 25 microscopic examinations on urinary sediment, both normal and abnormal, utilizing the brightfield microscope with 100% accuracy.
2. Correctly identify, count and report all of the following with 100% accuracy:
 - a. Red blood cells
 - b. White blood cells
 - c. Epithelial cells
 - d. Yeast, Bacteria, and Parasites
 - e. Casts
 - f. Crystals, both normal & abnormal
 - g. Oval fat bodies.
3. Discuss the effects of pH, temperature, bacteria and time on formed elements in the urine.
4. Identify and correlate normal and abnormal crystals based on the pH of the urine.
5. Distinguish artifacts from urinary constituents.

D. Evaluation

The student will be able to:

1. Perform 50 complete routine urinalysis examinations, automated or manual, with 100% accuracy.

2. Correlate microscopic findings with physical and chemical results.
3. Interpret results, both normal and abnormal, and discuss their clinical significance.
4. Correlate abnormal results with other clinical tests performed on the patient, if applicable.
5. Analyze results and determine their validity on the basis of appropriate quality control mechanisms.

IV Osmolarity Testing (as available at the rotation site)

The student will be able to:

1. Describe the theory and essential components of the osmometer utilized in the clinical laboratory. Assist in performing routine maintenance on the analyzer as indicated by laboratory protocol.
2. Perform routine quality control procedures per laboratory protocol.
3. Perform at least 4 osmolalities on serum and urine as indicated by laboratory protocol if applicable.
4. Verify and report patient results. Identify reference ranges of both serum and urine osmolalities and explain the clinical significance of abnormal test results.

V Biohazard and Safety Procedures

The student will be able to:

1. Demonstrate all laboratory safety techniques when dealing with biohazards in a urinalysis laboratory.
2. Demonstrate appropriate safety procedures when dealing with fires, chemical burns, eye accidents, and explosions.
3. Identify the areas in the laboratory where safety equipment is located.

VI Quality Control

The student will be able to:

1. Identify factors that contribute to pre-analytical, analytical & post-analytical variability.
2. Employ measures designed to reduce pre-analytical, analytical & post-analytical variability.

Suggested References:

Brunzel, N. A. (2013). *Fundamental of urine & body fluid analysis*. (3rd ed.). Elsevier, Inc.

Strasinger, S. K., Di Lorenzo, M. S. (2014). *Urinalysis and body fluids*. (6th ed.). Philadelphia, PA: F.A. Davis.

The cognitive objectives will be evaluated using study questions and case studies which will be graded as “P” if completed within the stated guidelines. The psychomotor objectives as outlined in the competency checklist must be “met”. Failure to meet either requirement will require resubmission and/or repeat, respectively.

Old Dominion University
 Medical Laboratory Science Program
 Urinalysis Checklist

Student Name: _____

Note: Procedures may be performed at multiple clinical sites.

Procedure	Clinical Site	Objectives & Competencies		Instructor Comments*
		Met	Not Met	
Routine Chemical & Physical Analysis (50)				
Microscopic Examination (25)				
Complete Urinalysis (50)				

Complete Urinalysis cont.				
Tests as available:				
Osmolality				
Others; please list				

Student should return the form (along with study questions and case studies) via email (preferred) to: Rachel Childs at rchilds@odu.edu

or via Fax: (757) 683-5028

Program requirements are not complete unless Urinalysis and Immunology Checklists, as well as the study questions and case studies are submitted.

Urinalysis Rotation Study Questions and Case Studies

These study questions and case studies are to be completed during your rotations. They must be all submitted by the date required by the faculty reviewing Urinalysis checklist included in this handbook. Program requirements are not complete unless Urinalysis and Immunology Checklists, as well as the study questions and case studies are submitted.

The document is posted on the Clinical Hematology Practicum (MLS 404) Blackboard site for download.

Responses to study questions and case studies are to be submitted as a word document. It is expected that your answers will be thorough, accurate and well researched. Unacceptable responses will be returned for resubmission.

Evaluation:

Responses will be evaluated according to the attached grading scheme.

The assigned grade will be U or P. The scale is as follows:

P = Pass

U = Resubmit

Old Dominion University

Medical Laboratory Science Program

CLINICAL IMMUNOLOGY/SEROLOGY OBJECTIVES

INTRODUCTION

Clinical Serology Practicum is designed to follow the preclinical courses, MLS 330/ 331 (Immunology/Serology Lecture and Laboratory) taken during students' junior year. This clinical experience builds on a previously acquired theoretical and technical foundation and emphasizes the enhancement of acquired knowledge and skills. **The menu for immunology/serologic procedures varies at each site. Therefore, these objectives should be satisfied during the entire length of your rotation period.**

COMPETENCIES

1. Operationalize mechanisms for the procurement, processing, and analysis of specimens.
2. Perform standard immunologic analyses, automated and manual, on blood, plasma, and other appropriate fluids.
3. Recognize discrepant results, using relevant clinical and interlaboratory data.
4. Institute solutions or corrective actions for problems related to verification of abnormal results, quality control data, and quality assurance issues.
5. Initiate and perform preventative maintenance, identify equipment and instrument problems, and institute corrective action.
6. Utilize computer-based technology for input and retrieval of data and instrument operation.
7. Demonstrate professional characteristics and conduct with laboratory personnel, other health care professionals, and patients.

BEHAVIORAL OBJECTIVES

A. Basic Immunologic Principles

The student will be able to:

1. Identify each of the types of immunity involved in the body's response to microbial disease.
2. Identify the factors that contribute to the development of immunologic disease.
3. Discuss the chemical and physical properties of antigens.
4. Differentiate the structure, function and physiological characteristics of each class of immunoglobulin.
5. Describe the sequence of antibody synthesis.
6. Describe the function of granulocytes and monocytes-macrophages in host defense.
7. Identify the specific function of each type of lymphocyte.
8. Identify major membrane markers use to classify T & B lymphocytes.

9. Describe the interrelated activities of the components of the immune system when mounting a response to antigenic challenge.

10. Describe the principle of each *in vitro* antigen – antibody reaction, to include agglutination, precipitation, and labeled assays.

B. General Laboratory Practice

The student will be able to:

1. Process specimens, including distribution to proper work areas, accessioning, and verification and reporting of results.
2. Identify precautions and/or special handling techniques for particular procedure requests.
3. Inspect and evaluate suitability of specimens for the requested analyses.
4. Select the appropriate kit and and/or reagents a needed for particular assay and determine appropriate substitutes for unavailable supplies.
5. Identify sources of biohazard and employ appropriate safeguards.
6. Recognize unsafe laboratory practices by selecting safe practice measures.
7. Perform computer-related functions where applicable.
8. Calibrate and operate equipment, instruments, and microscopes, following standard protocol.
9. Explain the principle of operation of all instrumentation.
10. Identify sources of error in the performance of procedures due to sources such as technique, reagents, mechanical function, etc.
11. Follow established quality control procedures.
12. Validate the accuracy of test results based on an assessment of obtained quality control values.
13. Evaluate situations where the control results are unacceptable and prescribe appropriate actions.
14. Identify reference ranges for each procedure.
15. Identify factors that contribute to pre-analytical, analytical & post-analytical variability.
16. Employ measures designed to reduce pre-analytical, analytical & post-analytical variability.
17. Correlate abnormal results with the disease that is indicated.

C. Specific Serological Procedures Group A

The student will be able to*:

1. Perform the following test procedures according to the site-specific protocol.
2. Obtain results within the limits of accuracy and time specified by the instructor.
3. Describe methodological principle of each procedure.
4. Discuss the clinical relevance of test results.
5. Identify and/or suggest specific disease states based the assessment of serological data.
6. Correlate normal and abnormal data with other clinical and/or laboratory findings in the identification of specific disease states.
7. Suggest additional tests that may be used to aid in making differential diagnoses.

Group A Procedures:

RPR

Rheumatoid Factor B EIA

Infectious Mono Test

Streptococcal Antibody Test
Pregnancy Test

D. Specific Serological Procedures **Group B**

The following tests are not performed at all clinical sites; however, where performed, students **must** satisfy* objectives 3-7 above as applied to each procedure.

Group B Procedures:

ANA
Toxoplasma Antibody Test
CMV Antibody Test, IgM and IgG
Thyroid Antibody, TG Microsomal (HA), and other organ specific tests
FTA-ABS
VDRL-CSF
Presumptive/differential Heterophile Antibody Test
CRP: Latex and Automated
Bacterial Antigen Tests, e.g., *Cryptococcus*, *C. difficile*
Febrile Agglutinins (RMSF)
EBV panel
HIV Antibody Tests
Hepatitis Tests
Cryoglobulin
T4/T8
Flow Cytometric Methods

***written documentation to be submitted by the student to the Program Director at the completion of all practica.**

The cognitive objectives will be evaluated using study questions and case studies which will be graded as “P” if completed within the stated guidelines. The psychomotor objectives as outlined in the competency checklist provided on the next page must be “met.” Failure to meet either requirement will require resubmission and/or repeat, respectively.

Old Dominion University
Medical Laboratory Science Program
 Immunology/Serology Practicum Checklist

Student Name _____

Note: Procedures may be performed at multiple clinical sites and in different sections of the lab (for example in microbiology). If the listed procedure is not performed at the assigned clinical site, please mark “not done” and note if there is a replacement test or if it is a send-out (and where is the patient’s sample sent). Do not leave the areas blank.

Procedure (minimum # required)	Clinical Site/ Preceptor’s initials	Objective/ Competency		Comments
		Met	Not Met	
RPR (8)				
Rheumatoid Factor (4)				
<input type="checkbox"/> Latex <input type="checkbox"/> EIA				
<input type="checkbox"/> Latex <input type="checkbox"/> EIA				
Infectious Mono Test (4)				
Streptococcal Antibody Test (2)				
Pregnancy Test (4)				
CRP				
GC/Chlamydia				
Measles/Mumps/Rubella Antibody				
CMV Antibody				
ANA				
Anti-ENA				
FTA-ABS				
VDRL-CSF				
Hepatitis Markers				
HIV Antibody/Ag				
T4/T8 flow cytometry				

Bacterial Antigens, e.g., <i>Cryptococcus, C. difficile</i>				
Molecular/Genetic Tests for Immune Diseases				
Other (please specify the test, instrument and methodology)				
Employ safe laboratory practices				
Identify reference range for each of the above				
Select appropriate supplies for assays				
Identify/validate specimens				
Identify/follow QC/QA procedures				
Assess clinical significance of test results				
Correlate data, identify specific disease states				
Suggest additional tests for definitive diagnoses				

Completed form must be returned by the student to the Program Director at the end of the rotation period. Program requirements are not complete unless Urinalysis and Immunology Checklists, as well as the study questions and case studies (see next page) are submitted.

Immunology/Serology Rotation Study Questions and Case Studies

Study questions and case studies are to be completed during your rotations. They may be submitted to Immunology faculty any time but must be completed by the end of your graduating semester.

The document is posted on the Clinical Blood Bank Practicum MLS 454 Blackboard site for download as many immunology tests are housed in the Clinical Chemistry section of the hospital laboratory.

Responses to study questions and case studies are to be submitted as a word document. It is expected that the answers will be thorough, accurate and well researched. Unacceptable responses will be returned for resubmission.

Evaluation:

Responses will be evaluated according to the attached grading scheme.

The assigned grade will be U or P. The scale is as follows:

P = Pass

U = Resubmit

Appendix C

Old Dominion University

MLS Clinical Practicum Assignments

STUDENT NAME : _____

PREDICTED DATE OF GRADUATION : _____

Clinical Course	Course Number	Credits	Semester Scheduled	Practicum Site	Course Dates	Grade Assigned
Hematology	MLS 404	4				
Microbiology	MLS 406	5				
Clin. Chemistry	MLS 452	5				
Special Chemistry	Included in MLS 452					
Blood Bank	MLS 454	4				
Clin. Elec. Practicum/ Phlebotomy	MLS 458	1				

I agree to the above scheduled practica and understand that if I fail to appear, I forfeit my right to that assignment. I understand that I must achieve a passing grade in each of the 3 components (written/online, practical and professional) in order to receive a passing grade in each course.

Student signature : _____

Date : _____

Old Dominion University
MDTS Safety Check-Off

Upon admission to the Medical Laboratory Science Program, all students sign the acknowledgement of Technical Standards/Essential functions listed at <https://www.odu.edu/mdts/medical-laboratory-science#tab176=5>

Students also review and sign the acknowledgement of understanding of MDTS Biohazard Policy and Guidelines and complete the following safety training activities:

- a. Blood Borne Pathogens Training delivered online in MLS 312.
- b. Safety training modules incorporated in MLS 331, 307/308 and 312 during the first semester.
- c. Additional safety training incorporated into other courses throughout the curriculum (for example MLS 319 – Medical Bacteriology, MLS 320 – Phlebotomy, etc.)

Various safety procedures apply to different clinical practicum sites due to specific floor plans and fire escape routes, location of safety equipment, maximum allowed occupancy in the labs, etc.

To make sure that student's experience during clinical practicum is safe and that the student follows specific procedures to assure safe practice, the student is required to become familiar with all safety procedures applicable to the individual clinical site, just like all new employees hired in the laboratory.

Each clinical practicum site will assure the Medical Laboratory Science Program at Old Dominion University that the student has gone through safety training no later than on the first day of the practicum. The extent of training is at the site's discretion.

In the absence of their own student safety checklist, clinical sites may choose to use the list of safety/orientation items and signature sheet provided below. The sheet must be dated and signed by the laboratory supervisor or safety training personnel, and by the student.

The signed list should be returned via bkraj@odu.edu or by fax (757-683-5028) to Barbara Kraj in the ODU MT/Medical Laboratory Science Program. If you have any questions, please call **757-683-6039**.

ODU Medical Laboratory Science Safety Check-off List

ITEM	CHECK-OFF
1. Laboratory Policy	
a. Work hours and breaks	
b. Dress code (also to include, hair, nails and jewelry)	
c. Initiative	
d. Record keeping	
e. Responsibilities; Honor Code	
f. HIPAA Training (a reminder only); Patient Confidentiality	
i. Report shredding	
ii. Computer Use	
g. Injuries	
h. Laboratory cost containment – reagents, copying	
i. Telephone use	
j. Lab coats, gloves and other PPE, including N95 respirator	
k. Food and beverages	
l. Absences (illness, doctor appointments, job interviews)	
m. Contact information for laboratory supervisors or lead techs	
2. Annual Safety – Location of Safety Manuals	
a. Personal safety and valuables	
b. Employee identification	
c. Workplace violence	
3. Codes	
a. Emergency	
b. Cardio-respiratory arrest	
c. (Pediatric) patient abduction/elopement	
d. Bomb threat	
e. Fire	
i. Phone number: activation, announcement, responsibility	
ii. Location of alarms, blankets, extinguishers	

iii.	Emergency escape route	
4.	Hazardous Chemicals and Electrical Safety	
a.	Eye wash	
b.	Shower	
c.	Toxic	
d.	Flammables	
e.	Storage	
f.	Compressed gas cylinders	
g.	Labels	
h.	SDS (safety data sheets)	
i.	Waste	
j.	Spills	
k.	Electrical safety	
5.	Standard Precautions	
a.	Biomedical waste	
b.	Clear bag	
c.	Red bag	
d.	Sharps containers	
f.	Personal Protective Equipment	
6.	Venipuncture regulations** (if applicable)	
a.	Accidental exposure	
b.	N95 respirator (see also PPE above)	
7.	Any regulations/safety training unique to the specific clinical area	

** Formal didactic training in venipuncture occurs in MLS 320 – during their first week at the clinical site, the students should be made aware of any institutional regulations about seeking care after and reporting needle sticks. **Students are not allowed to enter patient rooms with transmission-based precautions unless they get fit tested for N95 respirator.**

ODU MLS Program Safety Check-off Signature Sheet

I have attended the Laboratory Orientation and received information on safety, codes, hazardous chemicals and electrical safety, standard precautions, laboratory policy, and rules of conduct. I will adhere to hospital and laboratory policies during my practicum.

I have read the ODU Code of Student Conduct*, understand the provisions of it, and agree to abide by it.

*Available at <https://www.odu.edu/about/monarchcitizenship/student-conduct>.

I have assured the clinical site that I have reviewed the HIPAA policy available at <https://www.odu.edu/about/policiesandprocedures/university/1000/1004> and agree to follow these regulations.

Student name: _____

Clinical Site: _____

Student's Signature: _____ Date: _____

Laboratory Manager, Supervisor or Safety officer's name:

Signature: _____ Date: _____

COLLEGE OF HEALTH SCIENCES INCIDENT REPORT

<https://www.odu.edu/content/dam/odu/col-dept/school-nursing/docs/student-incident-form.pdf>

65



Fall 2010

**OLD DOMINION UNIVERSITY
COLLEGE OF HEALTH SCIENCES
STUDENT INCIDENT REPORT**

(Include accidents, exposure to hazardous substance or disease.)

1. PLEASE PRINT

Name _____

Address _____

City _____ State ____ Zip Code _____

UIN _____ Phone _____

School _____

2. OCCURRENCE DATE _____ Day of Week _____

3. OCCURRENCE TIME _____ **AM / PM**

4. REPORT DATE ____ / ____ / ____

5. LOCATION OF OCCURRENCE _____

6. ACTIVITY INVOLVED (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Lifting Patient | <input type="checkbox"/> Transport Patient |
| <input type="checkbox"/> Lifting Other | <input type="checkbox"/> Transport Equipment |
| <input type="checkbox"/> Invasive Procedure/Injection | <input type="checkbox"/> Equipment Use/Repair |
| <input type="checkbox"/> Other Patient Care | <input type="checkbox"/> Walking |
| <input type="checkbox"/> Non-Work Activity | <input type="checkbox"/> Hazardous Substance |
| | <input type="checkbox"/> Infectious Exposure |

Explain: _____

Other (explain) _____

7. **TYPE OF INJURY** (check all that apply)

- | | |
|--|---|
| <input type="checkbox"/> No Apparent Injury | <input type="checkbox"/> Foreign Body |
| <input type="checkbox"/> Laceration / Abrasion | <input type="checkbox"/> Strain / Sprain |
| <input type="checkbox"/> Puncture | <input type="checkbox"/> Fracture |
| <input type="checkbox"/> Burn | <input type="checkbox"/> Amputation |
| <input type="checkbox"/> Bruise / Crush | <input type="checkbox"/> Electrical Shock |
| <input type="checkbox"/> Bite / Scratch | |
| <input type="checkbox"/> Other (explain) | |

8. **PART OF BODY** (check all that apply)

- | Left | Right | Left | Right |
|-----------------------------------|--------------------------|------------------------------------|--------------------------|
| <input type="checkbox"/> Head | <input type="checkbox"/> | <input type="checkbox"/> Elbow | <input type="checkbox"/> |
| <input type="checkbox"/> Eye | <input type="checkbox"/> | <input type="checkbox"/> Hand | <input type="checkbox"/> |
| <input type="checkbox"/> Ear | <input type="checkbox"/> | <input type="checkbox"/> Finger(s) | <input type="checkbox"/> |
| <input type="checkbox"/> Face | <input type="checkbox"/> | <input type="checkbox"/> Wrist | <input type="checkbox"/> |
| <input type="checkbox"/> Neck | <input type="checkbox"/> | <input type="checkbox"/> Leg | <input type="checkbox"/> |
| <input type="checkbox"/> Chest | <input type="checkbox"/> | <input type="checkbox"/> Groin | <input type="checkbox"/> |
| <input type="checkbox"/> Abdomen | <input type="checkbox"/> | <input type="checkbox"/> Knee | <input type="checkbox"/> |
| <input type="checkbox"/> Back | <input type="checkbox"/> | <input type="checkbox"/> Foot | <input type="checkbox"/> |
| <input type="checkbox"/> Arm | <input type="checkbox"/> | <input type="checkbox"/> Toe(s) | <input type="checkbox"/> |
| <input type="checkbox"/> Shoulder | <input type="checkbox"/> | <input type="checkbox"/> Ankle | <input type="checkbox"/> |

9. **POSSIBLE CAUSES** (check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Unclear as to Policy/Procedure | <input type="checkbox"/> Unaware of Safety Hazard |
| <input type="checkbox"/> Patient Initiated Occurrence | <input type="checkbox"/> Foreign Material on Floor |
| <input type="checkbox"/> Improper Clothing/Equipment | <input type="checkbox"/> Building/Premises Defect |
| <input type="checkbox"/> Equipment Defect/Malfunction | <input type="checkbox"/> Improper Body Handling |
| <input type="checkbox"/> Poor Illumination | |
| <input type="checkbox"/> Other (explain) | |

10. **ODU SUPERVISOR NOTIFIED AT TIME OF OCCURRENCE**

Yes No Name _____

11. **DESCRIPTION OF OCCURRENCE**

12. **WITNESSED BY** (please print)

Name _____ Phone _____
 Name _____ Phone _____

What is an Exposure?

An exposure is a specific eye, mouth, other mucous membrane, non-intact skin, or parenteral contact with blood or other potentially infectious material that results from the performance of an employee's duties.

What Should You do if You Receive an Exposure?

1. Immediately report the incident to your supervisor and to the University's BBP Program Coordinator, Douglas Alexander at 683-4495

2. Obtain medical care through the University's contracted occupational health care provider, NOWCARE Medical Center, at either one of their two locations listed in this pamphlet.

Note: It is not mandatory that you seek post-exposure medical care; however, the University strongly encourages you to do so. In addition, the Center for Disease Control and Prevention (CDC) recommends that you seek medical care immediately (within two hours) following an exposure.

3. Call NOWCARE to let them know that you will be coming in for post-exposure medical care and consultation. Be sure to tell them that you are an ODU employee.

4. Bring form BBP-2 with you to NOWCARE. This form can be found in Appendix E of the University's BBP Exposure Control Plan. Your supervisor should provide you with a copy of this form. The form should be completed and signed by the attending health care professional and signed by you.

Post-Exposure Medical Care is Provided at

NO COST to you



5. Following your medical exam, forward a copy of the completed form BBP-2 to Douglas via campus mail to the Environmental Health & Safety Office or fax to 683-6025.

Note: If you choose **not** to seek medical care, you must complete form BBP-2 as follows: your name, social security number, place a check beside "Employee refuses post-exposure medical care" and sign and date the form acknowledging that you have been offered consultation and medical care. Forward a copy of the form to Douglas via campus mail to the Environmental Health & Safety Office or fax to 683-6025.

If you choose **not** to seek immediate medical care you may do so anytime thereafter; however, the University strongly encourages you to seek medical care immediately following an exposure per the CDC's recommendation.

6. As soon as possible after the exposure (i.e. next work day), complete form BBP-1, which can be found in Appendix E of the University's BBP Exposure Control Plan. Your supervisor should provide you with this form. Forward the form to Douglas via campus mail to the Environmental Health & Safety Office or fax to 683-6025.

7. As soon as possible after the exposure (i.e. next work day), contact the University's Worker's Compensation representative at 683-3051 to file a report of injury.

What should you do if you receive an exposure outside of NOWCARE's normal operating hours?

1. Immediately report the incident to your supervisor and EH&S at 683-4495
2. Contact a NOWCARE medical provider, at 424-4300. NOWCARE will provide you with instructions as to which actions you should take next.
3. Complete forms BBP-2 and BBP-1 as instructed previously in this pamphlet.

HIV, Hepatitis B and Hepatitis C testing for source individual

1. The source individual (if known) will be given the opportunity to have their blood tested for HIV, HBV and HCV. The source individual must grant permission for the testing, as he/she is not required to have the testing. The source individual should be sent for testing immediately following an exposure. The University will cover the cost of the testing.
2. Sentara Healthcare laboratory, which is located in Sentara Norfolk General Hospital, 2nd floor of the Raleigh Building (follow the signs for the lab), will conduct the testing. The lab provides services 24-hours per day, seven days per week.
3. The supervisor should notify Sentara lab at 668-1994 (8am-6pm) or 668-1968 (after 6pm) that an individual is coming in for testing.

CONTACT INFORMATION

ODU BBP Program Coordinator

Douglas Alexander
Environmental Health & Safety Office
5255 Hampton Blvd, Spong Hall Suite 2501
Norfolk, VA 23529
Office Phone: 683-4495
Cell Phone: 403-0020
Fax: 683-6025
E-mail: dalexand@odu.edu

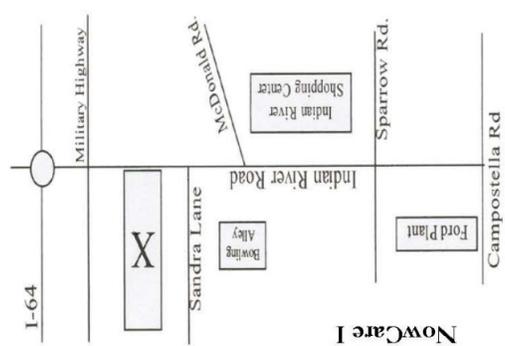
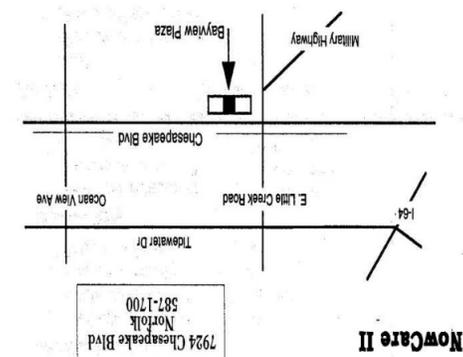
NOWCARE Medical Centers

NOWCARE I
(0.3 Mile from Military Hwy)
6632 Indian River Road
VA. Beach, VA 23464
Phone: 424-4300
Hours of Operation:
M-F 8:00 AM - 8:00 PM
Sat. 9:00 AM - 3:00 PM

NOWCARE II
7924 Chesapeake Boulevard
Norfolk, VA 23518
Phone: 587-1700
Hours of operation:
M-F 8:00 AM - 8:00 PM
Sat. 9:00 AM - 3:00 PM
Sun. 10:00 AM - 3:00 PM

NOWCARE After-Hours Medical Provider

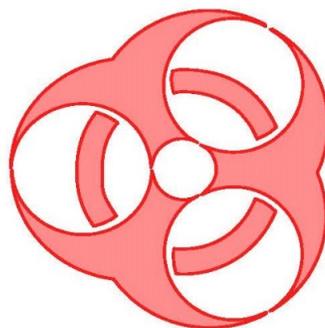
424-4300



Bloodborne Pathogens

Procedures for Evaluation and Follow-up of Exposure Incidents

(rev. August 2013)



Old Dominion University
Environmental Health &
Safety Office

ODU Biosafety Manual: <https://www.odu.edu/content/dam/odu/offices/environmental-health-safety/docs/biosafety-procedure-manual.pdf>

Bloodborne Pathogens Exposure Control Plan
<https://www.odu.edu/content/dam/odu/offices/environmental-health-safety/docs/bloodborne-pathogens-exposure-control-plan.pdf>

CDC Recommendations for Immediate Postexposure Interventions

From 57(RR06) available at: <https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5706a1.htm>

TABLE 2. Summary of recommendations for immediate prophylactic intervention

Type of injury or blood exposure	HBV*	HCV†	HIV‡	Tetanus
Category 1. Penetrating injury/nonintact skin [¶]	For persons for whom no reliable history of hepatitis B vaccination exists and for whom no contraindication to vaccine is known, initiate hepatitis B vaccine series, preferably within 24 hours and not later than 7 days.	No prophylaxis recommended. Consider testing (immediately or during a follow-up referral) if exposure is to a known or likely HCV-infected source or multiple sources. If testing is performed, obtain baseline (within 7-14 days) and follow-up (4-6 months) anti-HCV and ALT.	Generally, no PEP** is warranted; consider only if exposure is to a known or highly likely HIV-infected source.	Clean and debride wound as appropriate. Give age-appropriate tetanus toxoid vaccine if date of receipt of last dose is unknown and no known history of vaccine contraindication exists. May consider administering TIG (in addition to tetanus toxoid) if no reliable history of tetanus primary series exists (always use separate syringes and separate administration sites). If TIG is in short supply, persons aged ≥60 yrs and immigrants from regions other than Europe or North America are most likely to derive benefit.
Category 2. Mucous membranes ^{¶¶}	For persons for whom no reliable history of hepatitis B vaccination exists and for whom no contraindication to vaccine is known, initiate hepatitis B vaccine series, preferably within 24 hours and not later than 7 days.	Generally no action. Testing for early identification of HCV infection following mucous membrane exposure should be considered only in settings in which exposure to an HCV-infected source is known or thought to be highly likely.	Generally, no PEP** is warranted. Consider only if exposure is to a known or highly likely HIV-infected source.	No action
Category 3. Superficial exposure of intact skin ^{¶¶}	No action	No action	No action	No action

* Hepatitis B vaccine.

† Hepatitis C vaccine.

‡ Human immunodeficiency virus.

¶ Penetration of skin by a sharp object that was in contact with blood, tissue, or other potential infectious body fluid (i.e., semen, vaginal fluid, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid or any other visibly bloody body fluid or tissue) before penetration. Nonintact skin exposure is defined as contact of nonintact skin with any of these potentially infectious tissues or fluids.

** Postexposure prophylaxis. HIV PEP rarely is indicated. If PEP is indicated, the following procedures should be undertaken: 1) PEP should be started as soon as possible after exposure, without waiting for HIV test results; 2) PEP should be continued for 4 weeks; 3) Specimens should be collected for baseline testing, including HIV, complete blood count, liver function, creatinine, and pregnancy tests; 4) testing should be conducted in accordance with applicable state and local laws; 5) expert consultation should be obtained; sources of expert consultation include local persons with infectious diseases, hospital epidemiology, or occupational health expertise; local, state, or federal public health authorities; PEPline (available 24 hours/day via telephone 1-888-448-4911 [preferred] or online at <http://www.nccc.ucsf.edu/Hotlines/PEPline.html>); or the HIV/AIDS Rx information service at <http://aidsinfo.nih.gov>; 6) PEP should be continued for 4 weeks; 7) the patient should be discharged with written information, a 5-7 day supply of medication, and a follow-up appointment; and 8) an HIV specialist should reassess the patient's condition within 72 hours.

¶¶ Contact of mucous membranes (i.e., eyes, nose, mouth, or inner surfaces of the gut or genital areas) with blood, tissue, or other potential infectious body fluid (i.e., semen, vaginal fluid, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid or any other visibly bloody body fluid or tissue).

¶¶ Superficial exposure of intact skin (but not of mucous membranes) with blood, tissue, or other potential infectious body fluid (i.e., semen, vaginal fluid, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid or any other visibly bloody body fluid or tissue).

TABLE 3. Summary of recommendations for issues in special situations potentially associated with immediate prophylactic intervention

Issue/Situation	HBV*	HCV†	HIV‡	Tetanus
Vaccine supply shortage	Local public health departments, mutual aid agreements, or commercial vendors should be relied on. If local capacity is exceeded, local public health authorities should work through established communication channels with CDC and others.	NA¶	NA	Age-appropriate vaccines are preferred. If age-appropriate vaccine supply is expended, any tetanus vaccine formulation may be used, as the tetanus toxoid content is adequate for tetanus prophylaxis in any age group. In this setting, the benefit of supplying tetanus prophylaxis outweighs the potential for adverse reactions from formulations from a different age indication. Local public health departments, mutual aid agreements, or commercial vendors should be relied on. If local capacity is exceeded, local public health authorities should work through established communication channels with CDC and others.
Counseling	Exposed persons should refrain from donating blood, plasma, organs, tissue, or semen.	Exposed persons should refrain from donating blood, plasma, organs, tissue, or semen.	Exposed persons should refrain from donating blood, plasma, organs, tissue, or semen. In addition, persons known to be exposed to HIV should avoid breastfeeding and organ/tissue donation and take precautions to avoid sexual transmission until HIV infection has been ruled out.	NA
HIV PEP** is initiated	NA	NA	HIV PEP rarely is indicated. If it is, recommended procedures should be followed.††	

* Hepatitis B vaccine.

† Hepatitis C vaccine.

‡ Human immunodeficiency virus.

¶ Not applicable.

** Postexposure prophylaxis.

†† If PEP is indicated, the following procedures should be undertaken: 1) PEP should be started as soon as possible after exposure, without waiting for HIV test results; 2) PEP should be continued for 4 weeks; 3) specimens should be collected for baseline testing, including HIV, complete blood count, liver function, creatinine, and pregnancy tests; 4) testing should be conducted in accordance with applicable state and local laws; 5) expert consultation should be obtained; sources of expert consultation include local persons with infectious diseases, hospital epidemiology, or occupational health expertise; local, state, or federal public health authorities; PEPline (available 24 hours/day at telephone 1-888-448-4911 [preferred] or at <http://www.nccc.ucsf.edu/Hotlines/PEPline.html>); or the HIV/AIDS Rx information service, available at <http://aidsinfo.nih.gov>; 6) PEP should be continued for 4 weeks; 7) the patient should be discharged with written information, a 5–7 day supply of medication, and a follow-up appointment; and 8) an HIV specialist should reassess the patient's condition within 72 hours.

After-Hours Assistance (Health Services)

ODU Student Health Services is open Monday through Friday from 8:00 AM until 5:00 PM with extended hours Monday through Thursday until 7:00 PM during the fall & spring semesters. Summer hours are Monday through Friday 8 AM until 5 PM. If you need assistance after hours, please call ODU Public Safety at (757) 683-4000. Their dispatcher will call the on-call clinician who will return your call.

If you have an emergency, please call 911 or ODU Public Safety at (757) 683-4000.

Local Hospitals

There are two local hospitals with emergency facilities offering care 24 hours a day/365 days a year.

Sentara Norfolk General Hospital

600 Gresham Drive

Norfolk, VA 23507

(757) 388-3551 (Emergency Room)

Directions: From ODU, go South on Hampton Blvd. for 1.8 miles. Bear left and go Southwest for 200 feet to Gresham Drive. Bear left on Gresham Drive and go South for 0.2 miles to 600 Gresham Drive.

Bon Secours DePaul Medical Center

150 Kingsley Lane

Norfolk, VA 23507

(757) 889-5111 (Emergency Room)

Directions: From ODU, go South on Hampton Blvd. to 38th Street. Turn left on 38th Street to Granby Street. Turn left on Granby Street and go north for 1.2 miles to Kingsley Lane. Turn left on Kingsley Lane and go west for 0.2 miles to 150 Kingsley Lane.

Urgent Care Facilities

The following is a list of urgent care facilities. Please call for directions and to verify hours. All urgent care centers listed offer X-rays at their facility.

Ghent Station Medical Associates

930 W. 21st, Suite #100

Norfolk, VA 23517

(757) 622-8358

M-F 7:00 a.m. - 5:00 p.m.

Sat. 8:00 a.m. - 5:00 p.m.

Minor Emergency Care and Family Care

1368 N. Great Neck Road

Virginia Beach, VA 23454

(757) 412-0006

M-F 8:00 a.m.- 6:00 p.m.

Sat. 9:00 a.m. - 4:00 p.m.

Sun 10:00 a.m. - 4:00 p.m.

Fort Norfolk Plaza Urgent Care

301 Riverview Ave.

Norfolk, VA 23510

(757) 333-0284

M-F 8:00 a.m. - 5:00 p.m.

Patient First

1239 Cedar Rd

Chesapeake, VA 23322

(757) 549-9935

8:00 a.m. - 10:00 p.m. daily

Patient First

332 Newtown Road

Virginia Beach, VA 23462

(757) 473-8400

8:00 a.m. - 10:00 p.m. daily

Sentara Urgent Care

1326 E. Little Creek Rd.

Norfolk, VA 23518

(757) 583-6338

8:00 a.m. - 8:00 p.m. daily

Sentara Urgent Care

747 J. Clyde Morris Blvd.

Newport News, VA 23601

(757) 599-6117

8:00 a.m. - 8:00 p.m. daily

OLD DOMINION UNIVERSITY
MEDICAL LABORATORY SCIENCE PROGRAM
Affective Behavior/Professional Characteristics Policy

Rationale:

While it is difficult to define the subtle, intangible qualities that identify the professional Medical Laboratory Scientist, an attempt must be made to define and convey these affective behaviors to program students. **Preclinical and Clinical** students will be evaluated based on the Affective Behavior/Professional Characteristics Objectives and the levels of expected achievement outlined in Evaluation Guidelines. Behaviors that do not meet established criteria indicate that students have not satisfactorily completed the requirements and expectations of the course/program. Ratings below or above criteria must be accompanied by supporting statements in the comment section of the evaluation form. **Any failure to meet criteria should be addressed with constructive remediation prior to the final, summative evaluation.**

Objectives:

The student will be able to:

POLICY COMPLIANCE

1. Demonstrate an appreciation for the value and necessity of maintaining an orderly and safe laboratory environment by adhering to OSHA safety regulations, program and facility safety policies, and to practices outlined by the instructor.
2. Display professional/workplace responsibility by adhering to guidelines and policies outlined by the program, individual courses, and affiliated clinical facilities.

PROMPTNESS/ATTENDANCE

3. Develop the highly valued professional characteristic of maintaining a blemish free attendance and punctuality record by reporting to classes, laboratories, and assigned clinical sites on time, notifying instructors/supervisors promptly when absence is anticipated and meeting all established deadlines.

INITIATIVE

4. Display appropriate initiative and motivation in all academic and practical performances by completing both assigned and unsolicited tasks satisfactorily, addressing problems or interferences appropriately.

RESPONSIBILITY

5. Demonstrate an appreciation of the role of active participation in the education process by displaying preparedness and engagement in the classroom, laboratory, and clinical learning environments.
6. Display professional responsibility by accepting direction, adapting to the learning environment, and completing required assignments as outlined.

RELIABILITY

7. Demonstrate the ability to maintain intellectual and emotional stability and maturity under stress, by producing results that meet appropriate performance standards.
8. Demonstrate, by attitude and performance, an appreciation of the value and importance of procedural consistency and technical accuracy and precision.

PROFESSIONAL /WORKPLACE DEMEANOR

9. Display appropriate professional/workplace decorum during both the preclinical and clinical phases of the program by complying with the guidance, instructions, and direction outlined by faculty and clinical preceptors/mentors.
10. Comply with accepted rules of conventional professional/workplace behavior during both the preclinical and clinical phases of the program by exhibiting a cooperative, respectful, and collegial demeanor in interactions with faculty, classmates, clinical preceptors/mentors, and patients.

INTEGRITY

11. Display, through appropriate professional/workplace behavior and performance, recognition and respect for honest laboratory testing, patient confidentiality, and high quality patient outcomes.
12. Comply with the Old Dominion University Honor Code by submitting only work which is the product of one's own effort (I pledge... to be noted on submitted work).

Affective Behavior/Professional Characteristics Evaluation Guidelines

Behavior/Professional Characteristic	Evaluation		
	Exceeded Standards	Met Minimum Standards	Failed to Meet Minimum Standards
POLICY COMPLIANCE	<p>No instances in which laboratory safety and maintenance policies were not adhered to</p> <p>No instances in which guidelines and policies were not adhered to</p>	<p>No more than 2 instances in which laboratory safety and maintenance policies were not adhered to</p> <p>No more than 2 instances in which guidelines and policies were not adhered to</p>	<p>More than 3 instances in which laboratory safety and maintenance policies were not adhered to</p> <p>More than 3 instances in which guidelines and policies were not adhered to</p>
PROMPTNESS/ATTENDANCE	<p>No absences or failure to notify when absent</p> <p>No tardiness</p> <p>No instance of failure to meet deadlines</p>	<p>No more than one instance each of unexcused absence & failure to notify</p> <p>No more than two instances of unexcused tardiness</p> <p>No more than one instance of failure to meet deadlines</p>	<p>More than one instance each of unexcused absence & failure to notify</p> <p>More than two instances of unexcused tardiness</p> <p>More than one instance of failure to meet deadlines</p>
INITIATIVE	<p>No instances of unwillingness to complete tasks or seek problem resolution</p> <p>Several instances of willingness to attack and or complete unsolicited tasks</p>	<p>No more than two instances of unwillingness to complete tasks or seek problem resolution</p>	<p>More than two instances of unwillingness to complete tasks or seek problem resolution</p>
RESPONSIBILITY	<p>No instances of unpreparedness or disengagement</p> <p>No instances of failure to adapt or accept direction</p> <p>No instances of failure to complete assignments as outlined or directed</p>	<p>No more than three instances of unpreparedness or disengagement</p> <p>No more than three instances of failure to adapt or accept direction</p> <p>No more than two instances of failure to complete assignments as outlined or directed</p>	<p>More than three instances of unpreparedness or disengagement</p> <p>More than three instances of failure to adapt or accept direction</p> <p>More than two instances of failure to complete assignments as outlined or directed</p>

Behavior/Professional Characteristic (cont.)	Evaluation		
	Exceeded Standards	Met Minimum Standards	Failed to Meet Minimum Standards
RELIABILITY	<p>No instances of intellectual or emotional instability that impairs performance</p> <p>No instances of procedural inconsistency</p> <p>No instances of inappropriate regard for technical accuracy or precision</p>	<p>No more than two instances of intellectual or emotional instability that impairs performance</p> <p>No more than two instances of procedural inconsistency</p> <p>No more than two instances of inappropriate regard for technical accuracy or precision</p>	<p>More than two instances of intellectual or emotional instability that impairs performance</p> <p>More than two instances of procedural inconsistency</p> <p>More than two instances of inappropriate regard for technical accuracy or precision</p>
PROFESSIONAL//WORKPLACE DEMEANOR	<p>No instances in which there is a display of inappropriate professional/workplace decorum</p> <p>No instances of failure to follow directions related to professional /workplace behavior</p> <p>No instances in which there is a lack of cooperation, respect or collegiality</p>	<p>No more than one instance in which there is a display of inappropriate professional/workplace decorum</p> <p>No more than one instance of failure to follow directions related to professional/workplace behavior</p> <p>No more than one instance in which there is a lack of cooperation, respect or collegiality</p>	<p>More than one instance in which there is a display of inappropriate professional/workplace decorum</p> <p>More than one instance of failure to follow directions related to professional/workplace behavior</p> <p>More than one instance in which there is a lack of cooperation, respect or collegiality</p>
INTEGRITY	No instances of inappropriate professional /workplace dishonesty, disregard for quality patient care, confidentiality or violation of academic integrity	No instances of inappropriate professional /workplace dishonesty, disregard for quality patient care, confidentiality or violation of academic integrity	Any instance of inappropriate professional /workplace dishonesty, disregard for quality patient care, confidentiality or violation of academic integrity

**Old Dominion University
MEDICAL LABORATORY SCIENCE PROGRAM**

Evaluation of Affective Behavior/Professional Characteristics Form

*Evaluation # _____

Affective Behavior/Professional Characteristic	Evaluation				Comments
	Exceeded	Met	Failed to Meet	No Basis for Judgment	
Policy Compliance Safety, administrative and course policies					
Promptness/Attendance Punctuality, prompt notification, adherence to deadlines					
Initiative Motivation, completion of tasks, pursuit of unassigned tasks, resolution of problems					
Responsibility Academic preparedness, engagement, acceptance of direction, adaptability, completion of assignments					
Reliability Stability, production of results, adherence to practice standards, consistency					
Professional/ Workplace Demeanor Professional /workplace decorum, attitude, temperament, cooperation, respect , collegiality					
Integrity Professional/workplace honesty, respect for quality patient outcomes, adherence to HIPAA guidelines and academic honor code					

***Note: May need multiple forms for constructive, effective use of this tool. Early identification of deficiencies is important so that the student is able to remediate identified deficiencies prior to the summative, final evaluation.**

Student Name: _____ Date: _____ Course #: _____

Site: _____ Evaluator: _____

Student Comments: _____ Student's signature: _____

Instructor's signature: _____

Old Dominion University
Medical Laboratory Science Program

Clinical Practicum Grade Form

Student Name	
Course Dates	
Course Number & Name	
Clinical Site	

ALL CLINICAL SITES MUST COMPLY WITH THE FOLLOWING GRADING GUIDELINES: The three written/online examinations provided by ODU are **REQUIRED** for students at all clinical sites. Proctoring is arranged by ODU faculty. Although the types of practical examinations may vary by discipline, **three (3) practical examinations are REQUIRED**. The three practical examinations may include written evaluation items. Both types should be sufficient to evaluate a full range of expected practical skills. **Clinical instructors enter grades for the oral presentation, practical tests and professional characteristics below. Final practicum grade will be computed by ODU faculty.**

Written/ Online Tests (grade x weight)		Practical Tests (grade x weight)	
Pre-test	x .15	#1	x .25
Test 1	x .35	#2	x .25
Final	x .45	#3	x .50
Oral Presentation	x .05		
Written Test Grade		Practical Test Grade	

Final Grade Requirements

A minimum of 76% is required in both the written and practical components. A passing grade (P) for professional characteristics is required in order to receive a grade of C or better for the course. Any student with a grade below a C will be required to repeat the course.

Final Grade Computation				Grading Scale
Written/Online Test Grade		X .50 =		A - 93 -100%
Practical Test Grade		X .50 =		B - 86 - 92%
Professional Characteristics		P/F*	P	C - 76 - 85%
				D - 65-75%
		Final Grade		F - Below 65%

*P = exceeded or met all Characteristics; F = Failed to meet one or more characteristics

Instructor Comments:

Instructor Signature _____ **Date** _____

Old Dominion University
MLS 404, 406, 454, & 452 Clinical Practica
 Student Oral Presentations Evaluation Form

Presenter's Name _____

Title _____

Rating Scale:	Excel. = 5	Good = 4	Sat. = 3	< Sat.= 2	Poor = 1
Criteria:	Exceeds	All Met	Most Met	Some Met	Few Met

Criteria	Rating
1. Did the presenter provide an introduction?	
2. Was the subject presented in a logical and organized manner?	
3. Were printed materials and/or media used effectively?	
4. Did the presenter effectively encourage participation?	
5. Was the information presented valuable to clinical laboratory science and laboratory medicine?	
6. Did the presenter clearly relate the impact on, and the relevance to the practice of laboratory medicine?	
7. Was the presenter prepared?	
8. Did the presenter enunciate clearly?	
9. Did the presenter summarize and achieve effective closure?	
10. What is the presenter's overall effectiveness?	
Total	
Grade = Total x 2	

Note: Report presentation grade on Practicum Grade Form.

Old Dominion University

Medical Laboratory Science Program

CLINICAL ROTATION ACTION PLAN FORM

One clinical rotation action plan is allowed per student. Following a clinical rotation in which an action plan was necessary, no further action plans will be allowed in subsequent rotations. The form below is to be used by Clinical Instructors. Format of action plans developed to remedy poor performance on online examinations will be determined by the ODU Practicum Course Director.

Rotation/Discipline _____ Site _____

Instructor:

- 1. Document specific skill student is deficient in the chart below.
- 2. Explain error to student and discuss and/or demonstrate correct method.

Student:

- 1. Review written procedure.
- 2. Explain procedure to instructor.
- 3. Perform procedure under direct supervision.
- 4. After repeating the procedure the instructor will check the appropriate column, "A for acceptable or "U" for unacceptable.
- 5. If "U" is checked, contact the Program Director or Education Coordinator immediately to schedule a meeting.
- 6. Upon completion of the Action Plan, both the student and instructor will initial and date the form.

Student Name:			
Instructor:			
Date:	Competency Remediated	A	U
	Competency number:		

Comments:

Action Plan Successful (circle one): **YES** **NO**

Instructor Signature: _____ Date: _____

Student Signature: _____ Date: _____

Note: Please return a copy of the completed form to the Program Director or Education Coordinator (Fax: 757-683-5028)

Old Dominion University
Medical Laboratory Science Program
 Student Evaluation of Clinical Instructors

Students: Please fill out for every clinical instructor and return to ODU MLS office or fill out the electronic survey (preferred). The web link is provided in each clinical rotation Blackboard course. The link may be accessed multiple times for multiple instructors.

Site	
Practicum Course Number & Name	
Date	
Clinical Instructor	

Place an "X" in the appropriate box that best matches your numerical rating of the Instructor based on the characteristics listed below.

	Strongly Agree		Agree		Sometimes Agree & Disagree		Disagree		Strongly Disagree		Unable To Judge	
	5	↔	4	↔	3	↔	2	↔	1	↔	0	
1. Organized student experiences for effective and efficient learning												
2. Gave clear explanations and directions												
3. Exhibited sound knowledge of the content area												
4. Showed a strong interest in teaching												
5. Complied with course objectives and competencies												
6. Was accessible for consultation												
7. Encouraged participation in learning activities												
8. Evaluated performances objectively												
9. Feedback on my performance was provided in a reasonable time												
10. Modeled a professional demeanor												

Comments:

Old Dominion University
Medical Laboratory Science Program

Student Evaluation of the Clinical Practicum/Rotation Program

Place an "X" in the appropriate box that best matches your numerical rating of the entire Clinical Practicum/Rotation Program based on the characteristics listed below. Please return to the Medical Laboratory Science office or fill out the electronic survey (preferred). The web link will be sent prior graduation.

	Strongly Agree		Agree		Sometimes Agree & Disagree		Disagree		Strongly Disagree		Unable To Judge	
	5	↔	4	↔	3	↔	2	↔	1	↔	0	
1. The clinical practicum/rotation program was organized.												
2. The practicum/rotation program expectations were clearly outlined.												
3. Exposure to more than one clinical site was a beneficial learning experience.												
4. Exposure to fewer clinical sites was a beneficial learning experience.												
5. University faculty were supportive and helpful during the clinical practicum/rotation period.												
6. The laboratory practitioners that I encountered were advocates of the profession.												
7. The practicum/rotation course objectives were clearly defined.												
8. The length of the practicum/rotation courses was sufficient to complete course requirements.												
9. University MT courses prepared me for the clinical practicum/rotation courses.												
10. The practicum/rotation courses prepared me for entry-level practice.												

Comments:

Old Dominion University

Medical Laboratory Science Program

Student Records Release Authorization Form

I hereby authorize _____

(Faculty Member)

to review my records for the purpose of recommending me for employment and/or further education. I give permission for the following information to be disclosed: grades, awards, class standing, dates of attendance, participation in official class activities, and any assessments of class and/or clinical participation.

This authorization covers both written and oral requests.

For responses that require a completed form or the generation of a letter,

_____ **I waive the right** to receive a copy of the letter of recommendation from this faculty member.

_____ **I do not waive the right** to receive a copy of the letter of recommendation from this faculty member.

Student Name _____

(Please Print)

Student Signature _____

Date _____

Please return the signed form via email to MLS Program Director or to:

Faculty named above
Medical Laboratory Science Program
School of Medical Diagnostic & Translational Sciences
2118 Health Sciences Building
Old Dominion University
Norfolk, VA 23529

Old Dominion University
Medical Laboratory Science Program

Alumni Registration Form

(to be provided to Program Director prior graduation)

Name	
UIN	
Address	
Phone	Home
	Work
	Cell
FAX	
Non-ODU E-mail Address	
Date of Graduation	
Employer	

Was employment secured while completing the Clinical phase of your MLS courses?

Yes _____

No _____

Are you interested in participating in the ODU MLS Alumni activities?

Yes _____

No _____

Comments and questions regarding the content of the Student Handbook may be directed to:

Barbara Kraj, PhD, MLS(ASCP)^{CM}MBC^{CM}
Associate Professor and Program Director
Medical Laboratory Science
School of Medical Diagnostic & Translational Sciences
Old Dominion University
College of Health Sciences
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Old Dominion University

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