Disclaimer

The Medical Laboratory Science Program collaborates with the affiliated sites to provide best clinical experience and secure timely graduation. However, the Program cannot guarantee clinical placements for everyone if the hospitals affected by a crisis (including 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 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.
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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, 2012 updated April 2023)*, 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.”

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 Laboratory Scientist in areas of 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 (NAACLS Standards 2012, updated April 2023). Phlebotomy internship is offered to the students as an elective.

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 Clinical 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.j.) 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

<p>| Liaison/Instructor       | Department/Role                                      | Contact                                               |
|-------------------------|------------------------------------------------------|                                                      |
| <strong>American Red Cross/Norfolk</strong> | 611 W Brambleton Ave., Norfolk, VA 23510             |                                                      |
| Beth Eades              | Manager                                              | <a href="mailto:beth.eades@redcross.org">beth.eades@redcross.org</a> (757) 446-7574               |
|                         | Main Lab number (ask for Stephanie if Beth Eades not available) | 757-446-7713                                         |
| Sarah Malenfant         | Laboratory Technical Trainer/ODU Liaison            | <a href="mailto:sarah.malenfant@redcross.org">sarah.malenfant@redcross.org</a>                        |
|                         |                                                      | 757-446-7713                                         |
| <strong>Bon Secours - Maryview Medical Center</strong> |                                                      |                                                      |
| Linda McClenney         | Regional Director of Laboratory Services             | <a href="mailto:Linda_McClenney@bshsi.org">Linda_McClenney@bshsi.org</a> (757) 398-2454             |
| Terry Allen             | ODU Liaison / Coordinator for all Bon Secours locations | <a href="mailto:terry_allen@bshsi.org">terry_allen@bshsi.org</a>                               |
|                         |                                                      | 757-398-2286                                         |
| Phyllis Ramirez         | Laboratory Manager                                  | <a href="mailto:Phyllis_Ramirez@bshsi.org">Phyllis_Ramirez@bshsi.org</a>                           |
|                         |                                                      | 757-398-2088                                         |
| Katherine Miller        | Blood Bank                                           | <a href="mailto:Katherine_miller2@bshsi.org">Katherine_miller2@bshsi.org</a>                          |
|                         |                                                      | 757-398-2259                                         |
| Pegah Brown             | Hematology/Chemistry/UA                              | <a href="mailto:Pegah_brown@bshsi.org">Pegah_brown@bshsi.org</a>                               |
|                         |                                                      | 757-398-2096                                         |
| Ruby (Yvonne) Reinking  | Phlebotomy                                           | <a href="mailto:Ruby_reinking@bshsi.org">Ruby_reinking@bshsi.org</a>                             |
|                         |                                                      | 757-398-2198                                         |
| <strong>Bon Secours - Mary Immaculate Hospital</strong> |                                                      |                                                      |
| Linda McClenney         | Regional Director of Laboratory Services             | <a href="mailto:Linda_McClenney@bshsi.org">Linda_McClenney@bshsi.org</a> (757) 886-6463             |
| Mary Lacombe            | Laboratory Manager                                   | <a href="mailto:Mary_LaCombe@bshsi.org">Mary_LaCombe@bshsi.org</a>                              |
|                         |                                                      | 757-886-6032                                         |
| Lori Downey             | Core Lab Supervisor                                  | <a href="mailto:Lori_Downey@bshsi.org">Lori_Downey@bshsi.org</a> (757)886-6423                  |
| <strong>Bon Secours - Southampton Memorial Hospital (Franklin)</strong> |                                                      |                                                      |
| Linda Pittman           | Site Manager                                         | <a href="mailto:Linda_Pittman@bshsi.org">Linda_Pittman@bshsi.org</a>                              |
|                         |                                                      | 757-569-6194 (or 6193 for lab)                        |
| <strong>Chesapeake Regional Medical Center</strong> |                                                      |                                                      |
| Barbara Shields         | Laboratory Manager                                   | <a href="mailto:barbara.shields@chesapeakeregional.com">barbara.shields@chesapeakeregional.com</a>               |
| Kirby Badger            | Tech specialist/ Onboarding Student Coordinator       | <a href="mailto:kirby.badger@chesapeakeregional.com">kirby.badger@chesapeakeregional.com</a>                  |
|                         |                                                      | 757-312-4084                                         |
| Latasha Neal            | ODU Liaison                                          | <a href="mailto:Latasha.Neal@chesapeakeregional.com">Latasha.Neal@chesapeakeregional.com</a>                  |</p>
<table>
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<th></th>
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<td>Belinda Davis</td>
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<td>Rhonda Paragna</td>
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</tr>
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**Children’s Hospital of the King’s Daughters, Inc**

| Mary Shields                         | ODU Liaison/Education Coordinator                        |
|                                      | mary.shields@chkd.org                                    |
| Christina Ballance                   | Hematology/Hemostasis/Urinalysis                         |
|                                      | christina.ballance@chkd.org                              |
| Sandra Nixon                         | Blood Bank                                              |
|                                      | Sandra.Nixon@chkd.org                                    |
| Suzanne Quesnel                      | Microbiology/Virology/Serology/Molecular Diagnostics Manager |
|                                      | Suzanne.quesnel@chkd.org                                 |
| Patrick Oetman                       | Chemistry                                                |
|                                      | Patrick.oetman@chkd.org                                  |
| Alex Le                              | Core Lab Operations Manager                              |
|                                      | Alexander.Le@chkd.org                                    |

**Naval Medical Center Portsmouth**

620 John Paul Jones Circle
Portsmouth, VA 23708

| LCDR Jenny Smith                     | Department Head                                          |
|                                      | jenny.l.smith52.mil@health.mil 757-953-1689              |
| LCDR Juan RodriguezBarrantes         | Assistant Department Head                                |
|                                      | juan.b.rodriguezbarrantes.mil@health.mil 757-953-1735    |
| LCDR Erik Shanahan                   | Medical Director                                         |
|                                      | erik.e.shanahan.mil@health.mil 757-953-1700              |
| Cynthia Sivells                      | ODU Liaison                                             |
|                                      | christina.m.sivells.civ@health.mil 757-953-1705          |
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| Cynthia Sivells                      | Hematology                                              |
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| LT. Roberto Mangahas                 | Blood Bank                                              |
|                                      | roberto.o.mangahas.mil@health.mil 757-953-1710/757-953-1738 |
| Cynthia Sivells                      | Chemistry                                               |
|                                      | christina.m.sivells.civ@health.mil 757-953-1705          |
| Ruben Ayala                          | Microbiology                                            |
|                                      | ruben.ayala8.civ@health.mil 757-953-1750                 |
| Cristina Ruffy                       | Laboratory Dept. Quality Assurance                       |
|                                      | cristina.f.ruffy.civ@health.mil 757-953-3576             |

**Riverside Regional Medical Center**

<p>| Susan Elliott                        | Laboratory Director/ ODU Liaison for all Riverside sites |
|                                      | <a href="mailto:Susan.Elliott@rivhs.com">Susan.Elliott@rivhs.com</a>                                  |
|                                      | 757-612-6104                                             |</p>
<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Email</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>Jessica Linhardt</td>
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<td>757-388-2544</td>
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<td>252-384-4630</td>
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<td>Angie M. Swogger</td>
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<tr>
<td>Hospital Name</td>
<td>Address</td>
<td>Manager</td>
<td>Email Address</td>
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<tr>
<td><strong>Sentara Norfolk General Hospital (SNGH)</strong></td>
<td>600 Gresham Drive, Norfolk, VA</td>
<td>Theresa Whitfield</td>
<td><a href="mailto:TLWHITFI@sentara.com">TLWHITFI@sentara.com</a></td>
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<td>Grace Sikes (Team Coordinator)</td>
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<td></td>
<td>Kristie Barrick</td>
<td><a href="mailto:kbarric@sentara.com">kbarric@sentara.com</a>; 757-388-2445</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Debra Vaughn (manager)</td>
<td><a href="mailto:dvmcmaha@sentara.com">dvmcmaha@sentara.com</a>; 757-388-1589</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aleda Beamon</td>
<td><a href="mailto:axbeamo3@sentara.com">axbeamo3@sentara.com</a>; 757-388-0099</td>
</tr>
<tr>
<td><strong>Sentara Molecular Diagnostic Laboratory</strong></td>
<td></td>
<td>Dr. David Seidman</td>
<td><a href="mailto:DXSEIDMA@sentara.com">DXSEIDMA@sentara.com</a>; 757-388-2153</td>
</tr>
<tr>
<td><strong>Sentara Obici Hospital (SOH)</strong></td>
<td>2800 Godwin Blvd., Suffolk, VA</td>
<td>Irene Revita</td>
<td><a href="mailto:imrevita@sentara.com">imrevita@sentara.com</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spence Moore</td>
<td><a href="mailto:SXMOORE@sentara.com">SXMOORE@sentara.com</a>; 757-388-1961</td>
</tr>
<tr>
<td><strong>Sentara Princess Anne Hospital (SPAH)</strong></td>
<td>2025 Glenn Mitchell Dr., Virginia Beach, VA</td>
<td>Scotty McNeil</td>
<td><a href="mailto:gsmcneil@sentara.com">gsmcneil@sentara.com</a>; 757-507-1645</td>
</tr>
<tr>
<td><strong>Sentara Virginia Beach Hospital (SVBGH) / Sentara Independence</strong></td>
<td>1060 First Colonial Rd., VB, VA</td>
<td>Priscilla Darville</td>
<td><a href="mailto:PADARVIL@sentara.com">PADARVIL@sentara.com</a>; 757-395-8696</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jacqueline Danner</td>
<td><a href="mailto:JRDANNER@sentara.com">JRDANNER@sentara.com</a>; 757-395-6528</td>
</tr>
<tr>
<td><strong>Sentara Williamsburg Regional Medical Center (SWRMC)</strong></td>
<td>100 Sentara Circle, Williamsburg, VA</td>
<td>Dan Scungio (interim)</td>
<td><a href="mailto:djscungi@sentara.com">djscungi@sentara.com</a></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Michele Spencer</td>
<td><a href="mailto:mspence@sentara.com">mspence@sentara.com</a>; 757-736-0115</td>
</tr>
<tr>
<td><strong>UVA Health System (Charlottesville, VA)</strong></td>
<td></td>
<td>Briana Shelton</td>
<td><a href="mailto:bms7h@uvahealth.org">bms7h@uvahealth.org</a>; Cell# (preferred) 540-471-5189</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kevin Hearl</td>
<td><a href="mailto:kmh5wv@uvahealth.org">kmh5wv@uvahealth.org</a>; 434-982-0470</td>
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<tr>
<td></td>
<td></td>
<td>Suzi Stauffer</td>
<td><a href="mailto:smb4nb@uvahealth.org">smb4nb@uvahealth.org</a>; 434-982-0470</td>
</tr>
<tr>
<td>Name</td>
<td>Department</td>
<td>Email</td>
<td>Phone</td>
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<tr>
<td>Bo (Rachel) Forbes</td>
<td>Microbiology</td>
<td><a href="mailto:jsy9mh@uvahealth.org">jsy9mh@uvahealth.org</a></td>
<td>434-982-0460</td>
</tr>
<tr>
<td>Matthew Burroughs</td>
<td>Blood Bank</td>
<td><a href="mailto:mb3gg@uvahealth.org">mb3gg@uvahealth.org</a></td>
<td>434-924-2273</td>
</tr>
<tr>
<td>Mary Petty</td>
<td>ODU Liaison/Laboratory Manager</td>
<td><a href="mailto:mary.petty@va.gov">mary.petty@va.gov</a></td>
<td>757-722-9961 x3632</td>
</tr>
<tr>
<td></td>
<td>Education Coordinator</td>
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<td>(757) 722-9961, ext. 2889</td>
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<tr>
<td>Deitra Phillips</td>
<td>Hematology/Coag/</td>
<td><a href="mailto:Deitra.Phillips@va.gov">Deitra.Phillips@va.gov</a></td>
<td>757-722-9961 x2870</td>
</tr>
<tr>
<td>Niurca Rossy</td>
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<td>757-722-9961 x2868</td>
</tr>
<tr>
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<td>Chemistry</td>
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<tr>
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<td>757-722-9961 x 2650</td>
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<tr>
<td>Neil Gamayon</td>
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<td>804- 675-5812</td>
</tr>
<tr>
<td>Tammy Persinger</td>
<td>Hematology</td>
<td><a href="mailto:Tammy.persinger@va.gov">Tammy.persinger@va.gov</a></td>
<td>804-675-4443</td>
</tr>
<tr>
<td>Eric Lin</td>
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<td>804-675-5524</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CP: 804-548-5237</td>
<td></td>
</tr>
<tr>
<td>Olivia Durham</td>
<td>Chemistry</td>
<td><a href="mailto:Olivia.durham@va.gov">Olivia.durham@va.gov</a></td>
<td>804-675-5521</td>
</tr>
<tr>
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<td>804-675-5523</td>
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<tr>
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<td>804-675-5889</td>
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<tr>
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<td>Ancillary</td>
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<td>804-675-5000 ext. 8036</td>
</tr>
</tbody>
</table>

**Veterans Administration Medical Center Hampton**

**Veterans Administration Medical Center Richmond**
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 MyCB, including document storage, portfolio builders and reference tools. MyCB also allows you to upload any additional documents required by your school.

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
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). Some sites require documentation from the previous year

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](mailto: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.

<table>
<thead>
<tr>
<th>DISEASE</th>
<th>DOCUMENTATION</th>
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</thead>
<tbody>
<tr>
<td>Tetanus/ Diphtheria</td>
<td>TD booster required every 10 yrs.</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>Documentation is provided of either:</td>
</tr>
<tr>
<td></td>
<td>1. Negative IGRA test results from either: (1) QuantiFERON® -TB Gold In-Tube</td>
</tr>
<tr>
<td></td>
<td>test (GFT-GIT) or (2) T-SPOT® TB test (T-Spot) – <strong>NOW REQUIRED BY MOST</strong></td>
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<tr>
<td></td>
<td>SITES, or</td>
</tr>
<tr>
<td></td>
<td>2. <strong>Two-step</strong> Mantoux Tuberculin Skin Tests TST (PPD): two tests placed and</td>
</tr>
<tr>
<td></td>
<td>read <strong>at least 2 weeks apart</strong> within the last year; a TST placed and read</td>
</tr>
<tr>
<td></td>
<td>within the past 12 mos. may be used as the 1st step; <strong>negative chest X-ray</strong></td>
</tr>
<tr>
<td></td>
<td>within last year if history of positive TST.</td>
</tr>
<tr>
<td>Polio</td>
<td>Completed primary series</td>
</tr>
<tr>
<td>MMR (Measles [Rubeola], Mumps,</td>
<td>Doses 1 &amp; 2 @ 12 mos or later and after May 1971.</td>
</tr>
<tr>
<td>Rubella)</td>
<td>If no record of previous vaccination - titers are required</td>
</tr>
<tr>
<td>Varicella</td>
<td>Varicella titer - vaccine if susceptible</td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Vaccination series or signed declination form</td>
</tr>
<tr>
<td>Influenza</td>
<td>Vaccination documentation for the current season (August – May). Some sites</td>
</tr>
<tr>
<td></td>
<td>require documentation from the preceding year so please have that available.</td>
</tr>
<tr>
<td>COVID-19</td>
<td>Proof of full vaccination (two doses plus a booster) required or a notarized</td>
</tr>
<tr>
<td></td>
<td>exemption (acceptance of the exemption not guaranteed by the hospitals).</td>
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</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Student Signature</th>
<th>Date</th>
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<table>
<thead>
<tr>
<th>Program Faculty</th>
<th>Date</th>
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</table>
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 ≤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.

**RO...
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. Student’s clinical time should be as close to a full-time job time as possible and practical. A typical full-time job is 40 hrs per week. The American Society for Clinical Pathology considers anything between 35 and 40 hours per week as “full time” experience.

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 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 Program Director before graduation. All students must turn in the completed attendance log before graduation. Starting in 2022, Time Log is completed in Trajecsys.

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 immediately; mucous membranes should be flushed with water. Inform the clinic site instructor/supervisor of the incident at once.
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).

As discussed at Spring 2023 Clinical Advisory Committee meeting (March 23, 2023), in the event of a potential student exposure to a select agent as defined by the Center for Disease Control:

1. Affected student(s) and ODU staff will be notified of a potential exposure within 24 hours (this includes students currently in the rotation, as well as those who already completed their rotation since the potential exposure).
2. Affected student(s) will be instructed by the clinical site of their student exposure policy for follow up monitoring and/or treatment and testing, if necessary.
3. Students will be provided contact information of the person handling the exposures at the clinical site.

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
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. The audience attending the presentation may use the Oral Presentation Evaluation Form provided in Appendix C. Clinical Instructors are encouraged to enter the average scores in Trajecsys. 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 (per Advisory Committee Decision in November 2021):**

- A = 90-100%
- B = 83-89%
- C = 76-82%
- D = 65-75%
- F = Below 65%
**TrajecsysR system:**

In late summer/fall 2022, ODU MLS program piloted tracking students’ clinical time and competency check-offs using an online platform called TrajecsysR. The student cohort starting clinical rotations in summer 2023 will continue using the system at no charge. Registration information and instructions are provided to the clinical liaisons and preceptors, as well as the students via email. Please be patient as the program continues improving the system’s functionalities. Links for useful videos are provided below.

**Users:** [https://www.screencast.com/t/9RvKK1etYf9](https://www.screencast.com/t/9RvKK1etYf9)

**Time Records:** [https://www.screencast.com/t/A0x60pKU5TNS](https://www.screencast.com/t/A0x60pKU5TNS)

**Regaining Lost Access:** [http://www.screencast.com/t/283fswKvyc](http://www.screencast.com/t/283fswKvyc)

**Students and the TRS:** [https://www.screencast.com/t/YIS8RjFGp](https://www.screencast.com/t/YIS8RjFGp)

**Registration**

Students may register up to 45 days prior to the start date of the rotations using the following registration link: [https://www.trajecsys.com/programs/registration.aspx](https://www.trajecsys.com/programs/registration.aspx)

**Logging into Trajecsys**

Log into Trajecsys on a computer or on a smart phone (if your program allows smart phone clock records) at this link: [https://www.trajecsys.com/programs/login.aspx](https://www.trajecsys.com/programs/login.aspx). Students can choose to bookmark the Trajecsys Login page.

**Student Home Page (example)**

[Image of the Trajecsys interface]

- **Home**
- **Time Exception**
- **Logs**
- **Reports**
- **Comp Evals**
- **Send Email**
- **Comments**
- **Evaluations**
- **Logout**

- **Record exams or activities under Logs.**
- **View what will be on comp exams here.**

**Evaluations**

This menu item is used for evaluations or other forms that students will complete. (Note: not all programs will have this menu item.)

**Troubleshooting**

The User Guide can be accessed by clicking your name which will be located in the upper right-hand corner.

Clocking In and Out

Each day when students arrive at and depart from a clinical site, they will log in on a computer (or smart phone) and select the clinical site from a dropdown on the home page. Then the student will click the clock in / out button. This is the screen on a computer:

![Clock In/Out Screen](image)

You will be automatically logged off from the system after clocking in/out on a computer; this is to protect your records in case you were to forget to log out. When you change sites, remember to select the new site on this page; otherwise, your times will be recorded for the wrong site.

After logging in on a smart phone, you should see a message asking to share your location with Trajecsys. You must click “Allow.” It’s important that this is selected correctly the first time because some phones do not present the option again without resetting location services in the phone Settings. If “Don't Allow” is selected and no option is given the next time, the student should access the GPS page in the User Guide for information about resetting location services. Students should always check with the program administrator to determine program policies related to use of GPS / smart phone clock records. We recommend that students also read the pages related to resetting location warnings and how to improve accuracy. Students should see “Good Accuracy” on the phone screen before they click the clock in/out button. If the phone message states “Insufficient Accuracy,” students should wait until their phone has captured a good geolocation; this may require students (rarely) moving to another part of the building.

Time Exceptions

If you don’t file a clock in or out record, you must file a "time exception" instead. Using the clock in/out page is always preferred over filing time exceptions. A time exception is required for every missing clock record. If a student forgets to clock in AND forgets to clock out, this requires two separate time exceptions to correct the two missing clock records. One time exception is not sufficient to replace two missing clock records. Again, time exceptions should be used rarely; students should use the clock in / out button on the home page to record time records. Enter exceptions in 24-hour format (8:00 AM is 0800; 1:00 PM is 1300; 9:00 PM is 2100).
Unmatched Time Records

If you have unmatched clock records, these cannot be approved. Example, you only have one clock record for a day OR you clock in from one site and clock out from another site on the same date. To check for unmatched clock records, go to the Reports page in Trajecsys; click on Time Totals. Look to see which time records have a U? in the Status column. The U? indicates that there is a unmatched time record (note that a status of U without the question mark just means it has not been approved yet; the question mark means that it is unmatched). Check to see if you already have a pair of records for the same site or another site that date. Let your program coordinator or director know if they need to delete or edit an unmatched time record; (example, you clocked in at the wrong site and then at the correct site; have coordinator delete incorrect clock record). You are responsible for filing time exceptions for unmatched clock records. **Keep in mind that for times after noon, you must enter the time in 24-hour format. For example, 1:30 p.m. would be entered as 1330.**
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.

Withdrawal:

Withdrawal from any practicum course is equivalent from dismissal from the program unless approved by Program Director upon special circumstances (which may need consulting with Student Outreach & Support via oducares@odu.edu ).
STUDENT EVALUATION OF CLINICAL INSTRUCTORS & PRACTICUM PROGRAM
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 CANVAS 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
**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:

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Course</th>
<th>Credit hrs</th>
<th>Weeks*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry</td>
<td>MLS 452</td>
<td>5</td>
<td>4 including special chem/Immuno</td>
</tr>
<tr>
<td>Microbiology</td>
<td>MLS 406</td>
<td>5</td>
<td>5 including campus simulation</td>
</tr>
<tr>
<td>Blood Bank</td>
<td>MLS 454</td>
<td>4</td>
<td>4 including campus simulation</td>
</tr>
<tr>
<td>Hematology</td>
<td>MLS 404</td>
<td>4</td>
<td>4 including Urinalysis</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>18</td>
<td>17</td>
</tr>
</tbody>
</table>

*The number of weeks spent at each clinical rotation is per Clinical Advisory Committee approval in November 2021. Campus simulations for BB and Microbiology are equivalent to 2 weeks each. If the clinical site does Urinalysis in Chemistry department, the number of weeks in chemistry will increase to 5, while hematology will be decreased to 3. Similar adjustments may be made for Immunology.

**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” (≥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 CANVAS courses)
- Medical Laboratory Science Alumni Registration Form
- Records Release Authorization Form
- Immunology/Serology and Urinalysis Study Questions and Case Histories (posted in CANVAS 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
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 will 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 CANVAS 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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
</tr>
<tr>
<td>B</td>
<td>83-90%</td>
</tr>
<tr>
<td>C</td>
<td>76-82%</td>
</tr>
<tr>
<td>D</td>
<td>65-75%</td>
</tr>
<tr>
<td>F</td>
<td>Below 65%</td>
</tr>
</tbody>
</table>

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 and other required immunizations prior to any clinical experience. This includes the elective 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 *(QuantIFERON®-TB is now required by all Sentara locations instead of PPD)*. The testing may be done at the Student Heath 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. Student Practicum Handbook is updated each year before summer to assure all immunization requirements are current. These requirements may change after student has been accepted to the program.

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 CANVAS. 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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
</tr>
<tr>
<td>B</td>
<td>83-89%</td>
</tr>
<tr>
<td>C</td>
<td>76-82%</td>
</tr>
<tr>
<td>D</td>
<td>65-75%</td>
</tr>
<tr>
<td>F</td>
<td>Below 65%</td>
</tr>
</tbody>
</table>

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. Students are required to have a two-step PPD and other required immunizations prior to any clinical experience. This includes the elective 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 (QuantiFERON®-TB is now required by all Sentara locations instead of PPD). 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. Student Practicum Handbook is updated each year before summer to assure all immunization requirements are current. These requirements may change after student has been accepted to the program.

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.
Clinical Course Policies Acknowledgment

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.

Note: late summer 2022, the Program started using the Trajecsys online platform document time spent on site, completion of competencies, etc. Students entering clinical rotations in summer 2023 will be provided access information in May. If your preceptor prefers paper documentation, you may continue using the printed forms included in the handbook so that clinical instructor, manager, or institutional liaison may transfer information online at their convenience. There will be no cost to the student during implementation year (summer/fall 2022) or for the summer/fall 2023 cohort.

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
Note: This elective course is designed for Medical Laboratory Science students, as well as students not declared as MLS majors who meet prerequisite requirements.

COURSE DESCRIPTION

A 100 to 120-hour clinical internship for those desiring to qualify for PBT(ASCP) certification exam.
Prerequisites: MLS 320. (2 credit hours).

GOAL

Students will practically apply phlebotomy didactic knowledge in clinical setting at an assigned facility affiliated with Old Dominion University using behavioral objectives designed to assess skills and characteristics relevant to blood collection.

CONTACT INFORMATION

Barbara Kraj, PhD, MLS(ASCP)CM, MBCM, ODU MLS program director: bkraj@odu.edu; phone: 757-683-6039; fax: 757-683-5028

RECOMMENDED TEXTBOOK: As in MLS 320
Free access found at: https://ebookcentral.proquest.com/lib/odu/detail.action?docID=4453349

EXPECTATIONS

Expectations of the following behaviors are the same as outlined for preclinical courses (see MEDT 320 syllabus as an example) unless superseded by the clinical site policies.

   Attendance
   Communication
   Preparation
   Conduct
   Honor Code

BEHAVIORAL OBJECTIVES

Cognitive/Psychomotor: provided in a separate “MLS 322 Objectives/Evaluation Form”.

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.**
EVALUATION

Students are evaluated on 20 objectives listed in the Objective Evaluation Form using scores 1-5 defined as follows:

5= Above average
4= Average
3= Acceptable
2= Below average
1= Unacceptable

Student’s final score (calculated as sum of all scores achieved on objectives 1-20) is divided by 20 (or by the number of items on the list not assigned an N/A) and the following scale is used to assign the final course grade:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Average Scale Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.5-5.0</td>
</tr>
<tr>
<td>B</td>
<td>4.0-4.4</td>
</tr>
<tr>
<td>C</td>
<td>3.2-3.9</td>
</tr>
<tr>
<td>D</td>
<td>2.1-3.1</td>
</tr>
<tr>
<td>F</td>
<td>&lt;2.0</td>
</tr>
</tbody>
</table>

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.

INFORMATION ABOUT PBT(ASCP) CERTIFICATION

Students who successfully complete both MLS 320 and 322 are eligible to apply for PBT(ASCP) certification via Route #2: https://www.ascp.org/content/board-of-certification/get-credentialed

Note that completion of both: at least 100 hours AND 100 successful venipuncture is the condition qualifying for certification. Students meeting only one of the two conditions, may pass the class but will not be allowed to apply for certification.
OLD DOMINION UNIVERSITY
MEDICAL LABORATORY SCIENCE PROGRAM

MLS 322 – PHLEBOTOMY INTERNSHIP OBJECTIVES/EVALUATION FORM

STUDENT NAME: ________________________________________________

Students enrolled in MLS 322 are evaluated using the rubric below after 100 hours of blood drawing experience in the clinical setting, including a minimum performance of 100 successful, unaided blood collections including venipunctures and skin punctures.

EVALUATION SCORES:
5= Above average
4= Average
3= Acceptable
2= Below average
1= Unacceptable

Please comment on any individual score lower than a 3.

<table>
<thead>
<tr>
<th>Clinical Objective</th>
<th>Score</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Correctly identifies and evaluates requests for specimen collection for laboratory analysis.</td>
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<tr>
<td>2. Recognizes and initiates the correction of any discrepancy between a request for collection and the type of specimen required for testing.</td>
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<tr>
<td>3. Accurately and efficiently completes all paperwork associated with collection of the specimen test as requested.</td>
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<tr>
<td>4. Displays knowledge of the proper order of blood collection according to tube color.</td>
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<tr>
<td>5. Effectively greets patient and identifies reason for being there.</td>
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<tr>
<td>6. Effectively and appropriately communicates with the patient or the patient’s guardian regarding the collection procedure.</td>
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<td></td>
</tr>
<tr>
<td>7. Completely and accurately identifies the patient on whom the test are requested.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
8. Selects all materials required for proper and efficient collection of the specimen.

9. Correctly applies tourniquet and locates vein for venipuncture.

10. Using aseptic techniques, correctly prepares the collection site.

11. Efficiently and properly collects the specimen.


13. Correctly disposes of biohazardous waste and sharps in appropriate containers.

14. Recognizes and provides for control of adverse reactions during and immediately following specimen collection.

15. With 100% accuracy identifies, labels, and completes all paperwork required for proper distribution and processing of the specimens.

16. Expresses gratitude to the patient and/or others involved in obtaining the specimens.

17. Distributes specimens to proper individuals or sections for processing.

18. Observes and practices those techniques required by the OSHA Bloodborne Pathogen Standard and institution specific infection control.

19. Demonstrates proper technique in finger and/or heel sticks.

20. Demonstrates the proper isolation techniques for any of the following as requested by the instructor:
   a. Strict Isolation
   b. Respiratory Isolation
   c. Enteric Isolation
   d. Protective Isolation
   e. Wound and Skin Isolation

The following tasks are not required but are optional as time and location permit:

1. Point of Care \ Bedside Testing
2. Glucose Tolerance Testing
3. Collection of Blood Cultures
A Professional Behavior Evaluation Form (included in Student Handbook) will be completed at the end of the 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 in order to pass the clinical phlebotomy rotation.

Student’s Final Number Score (add numbers in Score Column) = ____________

**Average Scale Score** (Final number score divided by 20) = ____________

Professional Evaluation = ____________

Final Letter Grade = ____________

<table>
<thead>
<tr>
<th>Grading Scale:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Letter Grade</strong></td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>F</td>
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</tbody>
</table>

INSTRUCTOR’S NAME and SIGNATURE: ____________________________ Date __________________________

STUDENT’S SIGNATURE : ____________________________ Date __________________________

COMMENTS: __________________________________________________________________________
________________________________________________________________________________________

Clinical instructors please complete:
- THIS Form (PHLEBOTOMY INTERNSHIP OBJECTIVES/EVALUATION
- Professional Characteristics Form

Return all forms to: Barbara Kraj at bkraj@odu.edu

Note: For MLS 322 during summer/fall 2023 Trajecsys is NOT available (use paper forms)

Please sign Time Attendance Log
Students enrolled in MLS 322 are evaluated using the **OBJECTIVES/EVALUATION FORM** after 100 hours of blood drawing experience in the clinical setting, including a minimum performance of 100 successful, unaided blood collections including venipunctures and skin punctures.

**STUDENT NAME:** _______________________________________________________

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME IN</th>
<th>TIME OUT</th>
<th>Number of successful draws</th>
<th>INSTRUCTOR’S SIGNATURE AND CLINICAL SITE</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

This log must be submitted by the student to Old Dominion University Medical Laboratory Science Program Director, Barbara Kraj, PhD, MLS(ASCP)CM MB(ASCP)CM at bkraj@odu.edu
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:
McKenzie and Williams: Clinical Hematology. 4th edition. Pearson

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 ≥76% on written and practical evaluations with ± 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. Must be completed with accuracy of ± 10%.

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

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
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 90-100
B 83-89
C 76-82
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): ________________________________________________________________

Clinical instructors please complete: THIS Task List Form, Grade Form, Affective Behavior/Professional Characteristics Form and Oral Presentation Evaluation Form

Complete all forms in Trajecsys or (if technical issues arise) return via email to Rachel Childs at rchilds@odu.edu

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.

<table>
<thead>
<tr>
<th>Required Tasks</th>
<th>Minimum Number</th>
<th>Performance</th>
<th>Evaluation</th>
<th>Comments: Required for all tasks evaluated as CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>± 10%</td>
<td></td>
<td>Not Met</td>
<td>Met</td>
<td>Exceeded</td>
</tr>
<tr>
<td>Platelet Counts, est. &amp; performed</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESR</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prep. of Bld. Smears</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complete Blood Smear Examination (including differentials) - Normal</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Complete Blood Smear Examination (including differentials) - Abnormal</td>
<td>50</td>
<td></td>
<td></td>
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<tr>
<td>Test</td>
<td>Points</td>
<td></td>
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<tr>
<td>-------------------------------------------</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Scattergram and Histogram Interpretation</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prothrombin times/INR</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activated Partial Thromboplastin Times</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fibrinogen Assay</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D-Dimers</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Body Fluids Exam. (counts &amp; microscopics)</td>
<td>10 (var. sources)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Optional Tests (± 10%)** Perform/Observe tests on the optional list below.

<table>
<thead>
<tr>
<th>Test</th>
<th>Performed (P)/Observed (O)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone marrow slide preparation</td>
<td>Met</td>
</tr>
<tr>
<td>Sugar water test</td>
<td></td>
</tr>
<tr>
<td>Ham's test</td>
<td></td>
</tr>
<tr>
<td>Buffy coat differential</td>
<td></td>
</tr>
<tr>
<td>Hematocrits</td>
<td></td>
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<tr>
<td>Preparation of blood smears for routine differentials on newborns</td>
<td>Met</td>
</tr>
<tr>
<td>Thrombin time</td>
<td></td>
</tr>
<tr>
<td>Protamine sulfate</td>
<td></td>
</tr>
<tr>
<td>Factor assay</td>
<td></td>
</tr>
<tr>
<td>Test</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Bleeding time (automated)</td>
<td></td>
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<tr>
<td>Glucose -6-PD</td>
<td></td>
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<tr>
<td>Hemoglobin</td>
<td></td>
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<tr>
<td>FCM - CD4/CD8</td>
<td></td>
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<tr>
<td>Activated Protein C-Factor V Leiden</td>
<td></td>
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<tr>
<td>Protein C - Function &amp; Ag.</td>
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<tr>
<td>Eosinophil counts</td>
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<tr>
<td>Platelet Aggregation</td>
<td></td>
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<tr>
<td>Ristocetin Co-factor</td>
<td></td>
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<tr>
<td>Kleihauer-Betke stain</td>
<td></td>
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<tr>
<td>Reticulocytes (staining &amp; counting)</td>
<td></td>
</tr>
<tr>
<td>Sickle Cell Screening</td>
<td></td>
</tr>
</tbody>
</table>

**Other Tests**

Identify reference range for each of the above
<table>
<thead>
<tr>
<th>Task</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select appropriate supplies for assays</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Identify/validate specimens</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employ safe laboratory practices</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Perform computer related functions</td>
<td></td>
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<tr>
<td>Calibrate/Operate the following instruments according to standard protocol.</td>
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<tr>
<td>Multiparameter Hematology Analyzer</td>
<td></td>
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<tr>
<td>Slide Stainer</td>
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<tr>
<td>Microscope</td>
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<tr>
<td>Automated Coagulation Instrumentation</td>
<td></td>
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<tr>
<td>Semi-automated Coagulation Instrumentation</td>
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<tr>
<td>Explain the principle of operation of the above</td>
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<tr>
<td>Identify/isolate/troubleshoot procedural errors</td>
<td></td>
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<tr>
<td>Identify normal and abnormal blood cells</td>
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<tr>
<td>Apply appropriate calculations/correlate data</td>
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<tr>
<td>Task Description</td>
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<td>---------------------------------------------------------------------------------</td>
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<tr>
<td>Demonstrate the ability to recognize analytical errors</td>
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<tr>
<td>Identify/follow QC/QA procedures</td>
<td></td>
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<tr>
<td>Validate accuracy of test results</td>
<td></td>
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<tr>
<td>Prescribe appropriate action when controls are unacceptable</td>
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<tr>
<td>Assess clinical significance of test results</td>
<td></td>
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<tr>
<td>Correlate data, identify specific disease states</td>
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<tr>
<td>Suggest additional tests for definitive diagnoses</td>
<td></td>
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</tr>
</tbody>
</table>

**Clinical instructors please complete:**

- THIS MLS 404 Clinical Microbiology Task List
- Grade Form
- Oral Presentation Form and Affective Behavior/Professional Characteristics Form (be sure to review with student(s) and have student(s) sign).

Complete all forms in Trajecsys or (if technical issues arise) return via email to Rachel Childs at rchilds@odu.edu
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 2022 all 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
- Molecular testing (use additional check list provided on-site)

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 90-100
B 83-89
C 76-82
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


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 ≥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.

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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).

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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):

Clinical instructors please complete: THIS MLS 406 Clinical Microbiology Task List, Grade Form, Affective Behavior/Professional Characteristics Form and Oral Presentation Form.

Complete all forms in Trajecsys or (if technical issues arise) return via email to Angela Wilson at amwilson@odu.edu

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.

The highlighted tasks are expected to be completed at the hospital clinical site, while the non-highlighted tasks are completed during the on-campus phase simulation program.

<table>
<thead>
<tr>
<th>Task</th>
<th>Minimum Number Required</th>
<th>Performance degree</th>
<th>Evaluation C or CE</th>
<th>Comments: Please comment on all tasks evaluated as CE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Not Met Met Exceeded</td>
<td></td>
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</tr>
<tr>
<td>Assist and advise in proper specimen collection and handling</td>
<td>All</td>
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<tr>
<td>Demonstrates knowledge of procedures for handling improper/inappropriate specimens</td>
<td>All</td>
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<tr>
<td>Demonstrates knowledge of atmospheres (define ambient, anaerobic, increased CO₂, and microaerophilic)</td>
<td>All</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Determine appropriate media for initial isolation for each specimen/source</td>
<td>All</td>
<td></td>
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<tr>
<td>Demonstrate proper inoculation, isolation, incubation, and quantitation techniques for the following:</td>
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<tr>
<td>Test Type</td>
<td>Score</td>
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<tr>
<td>---------------------------------------</td>
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<tr>
<td>Clean catch urine</td>
<td>10</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Catheterized urine</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swabs</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sputum</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stool</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tissue</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSF/Other sterile body fluids</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Var</td>
<td></td>
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</tr>
</tbody>
</table>

Perform and interpret gram stain from a given source including:

- 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:

- 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

Serotype bacteria based on serological procedures to include:

<table>
<thead>
<tr>
<th>Bacteria</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.coli</td>
<td>1</td>
</tr>
<tr>
<td>Beta Streptococci</td>
<td>5</td>
</tr>
</tbody>
</table>

Process routine blood cultures according to the procedure in the specific lab

Perform work-up procedure for positive blood cultures & other sterile body fluids

Test a body fluid for bacterial antigens

State principle, perform, and interpret antimicrobial susceptibility tests:

<table>
<thead>
<tr>
<th>Methodology</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirby Bauer</td>
<td>5</td>
</tr>
<tr>
<td>Beta lactamase test/screen</td>
<td>3</td>
</tr>
<tr>
<td>Other methodologies: Microscan, Vitek, Pheonix</td>
<td>Var</td>
</tr>
</tbody>
</table>

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

State principle, perform, & interpret any commercial identification kits used in the specific laboratory (Example API 20E)
Discuss current and emerging molecular techniques and their use (see additional tasks listed under “other” below).

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>State the principle, perform &amp; interpret operation of any automated equipment used in the specific laboratory (Example: Vitek®, various serological, MALDI-TOF, and molecular platforms)</td>
<td>Var</td>
</tr>
<tr>
<td>Demonstrate safe work practices such as autoclave, disposal of biohazards, universal precautions, etc.</td>
<td>Var</td>
</tr>
<tr>
<td>Perform quality assurance (QA) procedures on equipment, media, &amp; tests</td>
<td>Var</td>
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<tr>
<td>Demonstrate knowledge of how to address QA failure</td>
<td>Var</td>
</tr>
</tbody>
</table>

**Unknown Specimens**

<table>
<thead>
<tr>
<th>Task Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate proper media selection, inoculation, incubation and quantitation techniques</td>
<td>Var</td>
</tr>
<tr>
<td>Perform and accurately interpret Gram stain</td>
<td>Var</td>
</tr>
<tr>
<td>Differentiate between normal flora and pathogens present in sample</td>
<td>Var</td>
</tr>
<tr>
<td>Identify isolates based on gram stain reaction, microscopic and colonial morphology, and biochemical reactions</td>
<td>Var</td>
</tr>
<tr>
<td>Correctly report and discuss appropriate antibiotics for pathogens identified</td>
<td>Var</td>
</tr>
</tbody>
</table>

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.
<table>
<thead>
<tr>
<th>MLS 406 Optional Tasks</th>
<th>Minimum Number*</th>
<th>Performance Degree</th>
<th>Evaluation C or CE</th>
<th>Comments: Please comment on all tasks evaluated as CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaerobes</td>
<td></td>
<td>Not Met</td>
<td>Met</td>
<td>Exceeded</td>
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<tr>
<td>Discuss proper specimen, collection, and transport of anaerobic cultures</td>
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<tr>
<td>Select proper media selection for anaerobic cultures</td>
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<tr>
<td>Establish anaerobic environment for culture (GasPak, Bio-Bags, etc.)</td>
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<tr>
<td>Recognize microscopic and colonial morphology of normal flora and potential pathogens</td>
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<tr>
<td>Mycobacteriology</td>
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<tr>
<td>Discuss safety precautions for both patients and specimens</td>
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<tr>
<td>Process specimens including digestion and decontamination procedures</td>
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<tr>
<td>Perform and read acid fast stains, modified acid-fast stains and fluorescent stains</td>
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<tr>
<td>Identify isolates based on colonial and biochemical characteristics</td>
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<tr>
<td>Perform and/or discuss antimycobacterial susceptibility testing and therapy</td>
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<tr>
<td>Identify mycobacterial culture media</td>
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<tr>
<td>Classify the Mycobacteria species according to Runyoun groups</td>
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<tr>
<td>Examine department study slides</td>
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<tr>
<td>Mycology</td>
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<tr>
<td>Discuss proper specimen, collection, transport &amp; processing</td>
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<tr>
<td>Perform wet mounts (KOH, India Ink, or LPCB)</td>
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<tr>
<td>Perform and read slide culture</td>
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<tr>
<td>Task</td>
<td>1</td>
<td>2</td>
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<td>---------------------------------------------------------------------</td>
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<tr>
<td>Identify morphological features of clinically significant fungi</td>
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<tr>
<td>Identify and select proper fungal media for a given source</td>
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<tr>
<td>Discuss clinical significance of fungal isolates from a given source and patient</td>
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<tr>
<td>Identify molds and yeast following the procedures used in the lab</td>
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<tr>
<td>Examine department study slides</td>
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<tr>
<td><strong>Parasitology</strong></td>
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<tr>
<td>Discuss proper specimen, collection, and processing</td>
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<tr>
<td>Perform a concentration procedure</td>
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<tr>
<td>Prepare fecal smears (direct smear, iodine prep, concentrated smears, &amp; permanent smears)</td>
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<tr>
<td>Prepare thick and thin blood smears for hemoflagellates</td>
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<tr>
<td>Examine departmental study slides</td>
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<tr>
<td>Recognize diagnostic stages of the following:</td>
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<tr>
<td>intestinal protozoa</td>
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<tr>
<td>Hemoflagellates</td>
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<tr>
<td>Malaria</td>
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<tr>
<td>Helminths</td>
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<tr>
<td>Coccidian</td>
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<tr>
<td><strong>Virology</strong></td>
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<tr>
<td>Discuss proper specimen, collection, transport &amp; processing</td>
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<tr>
<td>Describe clinically significant viruses</td>
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<tr>
<td>Perform and/or discuss identification methods (serology, molecular methods)</td>
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<tr>
<td><strong>Other</strong></td>
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<tr>
<td>Perform manual D-test, ESBL confirmation, E-test</td>
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<tr>
<td>Task</td>
<td>Completion Status</td>
<td></td>
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<tr>
<td>----------------------------------------------------------------------</td>
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<tr>
<td>Discuss role of Sentinel Laboratory in the Laboratory Response Network</td>
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<tr>
<td>Discuss proper specimen collection, transport &amp; processing of suspected agents of bioterrorism</td>
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<tr>
<td>Discuss proper collection, transport &amp; processing of specimens dedicated for diagnostic testing using molecular based assays</td>
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<tr>
<td>Identify instruments used in the performance of molecular diagnostic methods</td>
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<tr>
<td>Describe the principle of operation quality control/assurance issues related to the instruments</td>
<td></td>
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</tr>
</tbody>
</table>

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

**Clinical instructors please complete:**

- THIS MLS 406 Clinical Microbiology Task List
- Grade Form
- Oral Presentation Form and Affective Behavior/Professional Characteristics Form (be sure to review with student(s) and have student(s) sign).

Complete all forms in Trajecsys or (if technical issues arise) return via email to Angela Wilson at amwilson@odu.edu
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) 683-3459

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


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 ≥ 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.


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**

- Glucose/HgbA1C
- Electrolytes
- Total Protein
- Albumin
- AG Ratio
- Urine Protein
- Microalbumin
- Uric Acid
- BUN
- Creatinine
- Ammonia
- Total Bilirubin
- Direct Bilirubin
- Iron
- TIBC
- Ferritin
- HDL
- LDL
- Triglycerides
- Cholesterol
- Liver enzymes
- Amylase
- Lipase
- Cardiac Markers**
- Therapeutic Drug Monitoring**
- Drugs of Abuse**
- 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
   - Transferrin
   - Haptoglobin
   - Ceruloplasmin
   - Immunoglobulins
   - α-1 Antitrypsin
   - Prealbumin
   - 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 in-service 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) and 50% - Technical/Practical

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

A - 90-100%
B - 83-89%
C - 76-82%
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: _____________________________________________________

Clinical instructors please complete: THESE Task List Forms (multiple), Grade Form, Affective Behavior/Professional Characteristics Form and Oral Presentation Form

Complete all forms in Trajecsys or (if technical issues arise) return via email to Dr. Peter Mollica at pmollica@odu.edu

**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

<table>
<thead>
<tr>
<th>Task</th>
<th>Method of Evaluation</th>
<th>Evaluation:</th>
<th>Comments:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Operation/</td>
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</table>

**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: _______________________________________________________

<table>
<thead>
<tr>
<th>Task</th>
<th>Method of Evaluation</th>
<th>Evaluation:</th>
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<td>Preventative Maintenance</td>
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<td>Reagent Storage, and</td>
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<td>Accurate Verification of patient results</td>
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<tr>
<td>Identify discrepant patient results &amp; variables affecting results</td>
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<td>Identify Reference Ranges for each major analyte</td>
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<td>Knowledge of appropriate calculations</td>
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<td>Knowledge of Back-up Methodologies for each primary analyzer</td>
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<td>Analysis of Quality Control Data</td>
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<tr>
<td>Identify and take appropriate action for QC data that is not within established limits</td>
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<td></td>
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<tr>
<td>Correlation with other clinical lab results</td>
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<td>Correlation with pathological conditions</td>
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<tr>
<td>Trouble-shooting Techniques</td>
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ODU MLS Practicum Handbook, June 20, 2023. 93
Clinical instructors please complete:

- THESE (plural) MLS 452 Clinical Microbiology Task Lists
- Grade Form
- Oral Presentation Form and Affective Behavior/Professional Characteristics Form (be sure to review with student(s) and have student(s) sign).

Complete all forms in Trajecsys or (if technical issues arise) return via email to Dr. Peter Mollica at pmollica@odu.edu
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), BB(ASCP)CM, direct practicum oversight: cristina.f.ruffy.civ@health.mil (preferred), cruffy@odu.edu
Barbara Kraj, PhD, MLS(ASCP)CM, MBCM, 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

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 ≥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, Ac, Am
      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 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- 1 with 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 90-100  D 65-75
B 83-89  F below 65
C 76-82

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:_____________________________________________________________________

Clinical instructors please complete: THIS Task List Form, Professional Characteristics Form and Oral Presentation Form in Trajecsys or (if technical issues arise) return via email to Barbara Kraj at bkraj@odu.edu

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.

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<th>Required Tasks</th>
<th>Minimum/ Accuracy</th>
<th>Performance Degree</th>
<th>Evaluation: C or CE</th>
<th>Comments: (Required for all tasks evaluated as CE)</th>
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<tr>
<td>Identifies incorrectly labeled specimens</td>
<td>All</td>
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<td></td>
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<tr>
<td>Preparation of 5% RBC suspension</td>
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<tr>
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<tr>
<td>IAT</td>
<td>3/100</td>
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<tr>
<td>DAT</td>
<td>6/100</td>
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<tr>
<td>Crossmatch</td>
<td>2/100</td>
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<tr>
<td>Exchange Tx Workup</td>
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<tr>
<td>Task</td>
<td>Percentage</td>
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<td>var/100</td>
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<tr>
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<tr>
<td>Participates in ordering/inventory activities</td>
<td>Variable</td>
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<td>daily/100</td>
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<td>Processing and Release of blood and blood Components</td>
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<td>Lui Freeze / Thaw Elution</td>
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<td>Other:</td>
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</table>

**Optional Tasks**

- **Clinical instructors please complete:**
  - THIS Competency Task Form
  - Oral Presentation Form
  - Professional Characteristics Form (be sure to review with student(s) and have student(s) sign).

**Complete all forms in Trajecsys or (if technical issues arise) return via email to Barbara Kraj at bkraj@odu.edu**
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:**


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.
Student Name: _________________________________________________

Note: Procedures may be performed at multiple clinical sites.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Clinical Site</th>
<th>Objectives &amp; Competencies</th>
<th>Instructor Comments*</th>
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<tr>
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<td>Microscopic Examination (25)</td>
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<tr>
<td>Complete Urinalysis (50)</td>
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<tr>
<td>Complete Urinalysis cont.</td>
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</table>
Tests as available:

Osmolality

Others; please list

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

The form is also available in Trajecsys.

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) CANVAS 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.
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. USE THE “OTHER” CATEGORY AT THE END OF THE CHECKLIST TO DOCUMENT ANY ANTIGEN OR ANTIBODY-BASED ASSAY NOT LISTED HERE.**

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<th>Procedure (minimum # required)</th>
<th>Objective/Competency</th>
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<td>Streptococcal Antibody Test (2)</td>
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<td>CRP</td>
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<tr>
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<th>Employ safe laboratory practices</th>
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<td>Identify reference range for each of the above</td>
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<td>Select appropriate supplies for assays</td>
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<td>Identify/validate specimens</td>
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<td>Identify/follow QC/QA procedures</td>
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<tr>
<td>Assess clinical significance of test results</td>
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<tr>
<td>Correlate data, identify specific disease states</td>
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<tr>
<td>Suggest additional tests for definitive diagnoses</td>
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Completed form must be returned by the student to the Program Director at the end of the rotation period. The form is also available in Trajecsys (if competencies are checked off at different locations, more than one Trajecsys form may need to be submitted).

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 CANVAS site for download even though 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
**MLS Clinical Practicum Assignments**

**STUDENT NAME:** __________________________________________________

**PREDICTED DATE OF GRADUATION:** __________________________________

<table>
<thead>
<tr>
<th>Clinical Course</th>
<th>Course Number</th>
<th>Credits</th>
<th>Semester Scheduled</th>
<th>Practicum Site</th>
<th>Rotation Dates</th>
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<th>Immunology</th>
<th>Urinalysis</th>
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I agree to the above scheduled practica and understand that if I fail to appear, I forfeit my right to that assignement. 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: ____________________________________________________________________

This time and attendance log may be used as a back-up to record clinical hours entered through Trajecsys when the system is down or in case of any other technical issue. Trajecsys tutorial for students: [https://www.screencast.com/t/YIS8RjFGp](https://www.screencast.com/t/YIS8RjFGp)

Student’s clinical time should be as close to a full-time job time as possible and practical. A typical full-time job is 40 hrs per week. The American Society for Clinical Pathology considers anything between 35 and 40 hours per week as “full time” experience.

**STUDENT NAME:** ___________________________________________

<table>
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<th>TIME IN</th>
<th>TIME OUT</th>
<th>INSTRUCTOR INITIALS AND SITE</th>
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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](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 and Basic Biosafety Training through CITI prior starting the program.

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 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

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

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

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

1. PLEASE PRINT
   Name ____________________________________________
   Address _______________________________________
   Cty __________________ 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)

   _____ Lifting Patient
   _____ Lifting Other
   _____ Invasive Procedure/Injection
   _____ Other Patient Care
   _____ Non-Work Activity
   _____ Transport Patient
   _____ Transport Equipment
   _____ Equipment Use/Repair
   _____ Walking
   _____ Hazardous Substance
   _____ Infectious Exposure

Explain: ________________________________________________
______________________________________________________
______________________________________________________

Other (explain) __________________________________________
______________________________________________________
______________________________________________________
7. **TYPE OF INJURY** (check all that apply)

- No Apparent Injury
- Laceration / Abrasion
- Puncture
- Burn
- Bruise / Crush
- Bite / Scratch
- Other (explain)

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

<table>
<thead>
<tr>
<th>Left</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head</td>
<td>Elbow</td>
</tr>
<tr>
<td>Eye</td>
<td>Hand</td>
</tr>
<tr>
<td>Ear</td>
<td>Finger(s)</td>
</tr>
<tr>
<td>Face</td>
<td>Wrist</td>
</tr>
<tr>
<td>Neck</td>
<td>Leg</td>
</tr>
<tr>
<td>Chest</td>
<td>Groin</td>
</tr>
<tr>
<td>Abdomen</td>
<td>Knee</td>
</tr>
<tr>
<td>Back</td>
<td>Foot</td>
</tr>
<tr>
<td>Arm</td>
<td>Toe(s)</td>
</tr>
<tr>
<td>Shoulder</td>
<td>Ankle</td>
</tr>
</tbody>
</table>

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

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

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

- Yes
- No

11. **DESCRIPTION OF OCCURRENCE**

- 

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>
13. MEASURES TAKEN TO PREVENT REOCURRENCE

14. TREATMENT

- No Treatment Necessary
- Employee Health
- Emergency Room

First-Aid
Refused Treatment
Other

Hospital

Explain

15. REFERRED TO PHYSICIAN

- Yes
- No

Treatment Facility
Physician’s Name

Briefly Describe Treatment

OR

If incident is a blood or body fluid exposure, please adhere to Blood-Borne Pathogen Post Exposure guidelines. Document only as directed.

16. DISPOSITION

- Returned to School
- Released to Home
- Hospitalized – Name of Hospital
- Fatality
- Other (explain)

17. TIME LOSS

- Yes
- No

Estimated Absence

18. SIGNATURES

Student ___________________________ Date __/__/____
Clinical Supervisor ___________________________ Date __/__/____
ODU Course Supervisor ___________________________ Date __/__/____
Comments ___________________________

Fall 2017
What is an Exposure?

An exposure is a specific eye, mouth, other mucous membrane, non-intact skin, or parental 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.

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 of work, number of hours worked, and date of incident. If you choose 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.

Post-Exposure Medical Care is Provided at NO COST to you

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&SE 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 668-1934 (8am-6pm) or 668-1968 (after 6pm) that an individual is coming in for testing.

### CDC Recommendations for Immediate Postexposure Interventions

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Injury Type</th>
<th>HBV*</th>
<th>HCV†</th>
<th>HIV‡</th>
<th>Tetanus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1. Penetrating injury/nonintact skin§</td>
<td>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.</td>
<td>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.</td>
<td>Generally, no PEP** is warranted; consider only if exposure is to a known or highly likely HIV-infected source.</td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>Category 2. Mucous membranes††</td>
<td>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.</td>
<td>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.</td>
<td>Generally, no PEP** is warranted. Consider only if exposure is to a known or highly likely HIV-infected source.</td>
<td>No action</td>
<td></td>
</tr>
<tr>
<td>Category 3. Superficial exposure of intact skin†‡</td>
<td>No action</td>
<td>No action</td>
<td>No action</td>
<td>No action</td>
<td></td>
</tr>
</tbody>
</table>

* Hepatitis B vaccine.
† Hepatitis C vaccine.
§ 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.ncccl.ucsf.edu/Horlines/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>
<thead>
<tr>
<th>Issue/Situation</th>
<th>HBV*</th>
<th>HCV†</th>
<th>HIV‡</th>
<th>Tetanus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaccine supply shortage</td>
<td>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.</td>
<td>NA§</td>
<td>NA</td>
<td>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.</td>
</tr>
<tr>
<td>Counseling</td>
<td>Exposed persons should refrain from donating blood, plasma, organs, tissue, or semen.</td>
<td>Exposed persons should refrain from donating blood, plasma, organs, tissue, or semen.</td>
<td>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.</td>
<td>NA</td>
</tr>
<tr>
<td>HIV PEP** is initiated</td>
<td>NA</td>
<td>NA</td>
<td>HIV PEP rarely is indicated. If it is, recommended procedures should be followed††</td>
<td></td>
</tr>
</tbody>
</table>

* 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.

### 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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>Phone Numbers</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Ghent Station Medical Associates</td>
<td>930 W. 21st, Suite #100</td>
<td>(757) 622-8358</td>
<td>M-F 7:00 a.m. - 5:00 p.m. Sat. 8:00 a.m. - 5:00 p.m.</td>
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<tr>
<td></td>
<td>Norfolk, VA 23517</td>
<td></td>
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</tr>
<tr>
<td>Minor Emergency Care and Family Care</td>
<td>1368 N. Great Neck Road</td>
<td>(757) 412-0006</td>
<td>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.</td>
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<tr>
<td></td>
<td>Virginia Beach, VA 23454</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient First</td>
<td>1239 Cedar Rd</td>
<td>(757) 549-9935</td>
<td>8:00 a.m. - 10:00 p.m. daily</td>
</tr>
<tr>
<td>Patient First</td>
<td>332 Newtown Road</td>
<td>(757) 473-8400</td>
<td>8:00 a.m. - 10:00 p.m. daily</td>
</tr>
<tr>
<td>Patient First</td>
<td>1326 E. Little Creek Rd.</td>
<td>(757) 583-6338</td>
<td>8:00 a.m. - 8:00 p.m. daily</td>
</tr>
<tr>
<td>Patient First</td>
<td>747 J. Clyde Morris Blvd.</td>
<td>(757) 599-6117</td>
<td>8:00 a.m. - 8:00 p.m. daily</td>
</tr>
<tr>
<td>Fort Norfolk Plaza Urgent Care</td>
<td>301 Riverview Ave.</td>
<td>(757) 333-0284</td>
<td>M-F 8:00 a.m. - 5:00 p.m.</td>
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<tr>
<td></td>
<td>Norfolk, VA 23510</td>
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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 DEEMANOR

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

<table>
<thead>
<tr>
<th>Behavior/Professional Characteristic</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exceeded Standards</td>
</tr>
<tr>
<td>POLICY COMPLIANCE</td>
<td>No instances in which laboratory safety and maintenance policies were not adhered to</td>
</tr>
<tr>
<td>POMBRENTNESS/ATTENDANCE</td>
<td>No instances in which guidelines and policies were not adhered to</td>
</tr>
<tr>
<td>INITIATIVE</td>
<td>No absences or failure to notify when absent</td>
</tr>
<tr>
<td></td>
<td>No tardiness</td>
</tr>
<tr>
<td></td>
<td>No instance of failure to meet deadlines</td>
</tr>
<tr>
<td>RESPONSIBILITY</td>
<td>No instances of unwillingness to complete tasks or seek problem resolution</td>
</tr>
<tr>
<td></td>
<td>Several instances of willingness to attack and or complete unsolicited tasks</td>
</tr>
<tr>
<td></td>
<td>No instances of unpreparedness or disengagement</td>
</tr>
<tr>
<td></td>
<td>No instances of failure to adapt or accept direction</td>
</tr>
<tr>
<td></td>
<td>No instances of failure to complete assignments as outlined or directed</td>
</tr>
<tr>
<td>Behavior/Professional Characteristic (cont.)</td>
<td>Evaluation</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td></td>
<td>Exceeded Standards</td>
</tr>
<tr>
<td>RELIABILITY</td>
<td>No instances of intellectual or emotional instability that impairs performance</td>
</tr>
<tr>
<td></td>
<td>No instances of procedural inconsistency</td>
</tr>
<tr>
<td></td>
<td>No instances of inappropriate regard for technical accuracy or precision</td>
</tr>
<tr>
<td>PROFESSIONAL//WORKPLACE DEMEANOR</td>
<td>No instances in which there is a display of inappropriate professional/workplace decorum</td>
</tr>
<tr>
<td></td>
<td>No instances of failure to follow directions related to professional/workplace behavior</td>
</tr>
<tr>
<td></td>
<td>No instances in which there is a lack of cooperation, respect or collegiality</td>
</tr>
<tr>
<td>INTEGRITY</td>
<td>No instances of inappropriate professional/workplace dishonesty, disregard for quality patient care, confidentiality or violation of academic integrity</td>
</tr>
</tbody>
</table>
**Evaluation #_____**

**Evaluation of Affective Behavior/Professional Characteristics Form**

<table>
<thead>
<tr>
<th>Affective Behavior/Professional Characteristic</th>
<th>Evaluation</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exceeded</td>
<td>Met</td>
</tr>
<tr>
<td><strong>Policy Compliance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety, administrative and course policies</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Promptness/Attendance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Punctuality, prompt notification, adherence to deadlines</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Initiative</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motivation, completion of tasks, pursuit of unassigned tasks, resolution of problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Responsibility</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic preparedness, engagement, acceptance of direction, adaptability, completion of assignments</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reliability</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability, production of results, adherence to practice standards, consistency</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Professional/Workplace Demeanor</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional/workplace decorum, attitude, temperament, cooperation, respect, collegiality</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Integrity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional/workplace honesty, respect for quality patient outcomes, adherence to HIPAA guidelines and academic honor code</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: This Form is available in Trajecsys. 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. Please make sure the student signs this completed form before submitting to ODU faculty responsible for the rotation.*

Student Name: ____________________________ Date: ____________________________ Course #: ____________________________

Site: ____________________________ Evaluator (Name and Signature): ____________________________

Student’s Comments (if applicable): ____________________________________________________________

Student’s signature: ________________________________________________________________
Old Dominion University
Medical Laboratory Science Program
Clinical Practicum Grade Form

<table>
<thead>
<tr>
<th>Student Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Dates</td>
<td></td>
</tr>
<tr>
<td>Course Number &amp; Name</td>
<td></td>
</tr>
<tr>
<td>Clinical Site</td>
<td></td>
</tr>
</tbody>
</table>

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 or in Trajecsys. Final practicum grade will be computed by ODU faculty.

<table>
<thead>
<tr>
<th>Written/Online Tests (grade x weight)</th>
<th>Practical Tests (grade x weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test x .15</td>
<td>#1 x .25</td>
</tr>
<tr>
<td>Test 1 x .35</td>
<td>#2 x .25</td>
</tr>
<tr>
<td>Final x .45</td>
<td>#3 x .50</td>
</tr>
<tr>
<td>Oral Presentation x .05</td>
<td></td>
</tr>
<tr>
<td>Written Test Grade</td>
<td>Practical Test Grade</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Final Grade Computation</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written/Online Test Grade</td>
<td>X .50 = A - 90 -100%</td>
</tr>
<tr>
<td>Practical Test Grade</td>
<td>X .50 = B - 83 - 89%</td>
</tr>
<tr>
<td>Professional Characteristics</td>
<td>P/F* P C - 76 - 82%</td>
</tr>
<tr>
<td>D - 65-75%</td>
<td></td>
</tr>
<tr>
<td>Final Grade</td>
<td>F - Below 65%</td>
</tr>
</tbody>
</table>

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

Instructor Comments:

Instructor Signature ____________________________ Date ____________________________

ODU MLS Practicum Handbook, June 20, 2023. 140
Old Dominion University
Medical Laboratory Science Program

Interprofessional Interaction Documentation

Interprofessional education aims at preparing students for healthcare environment where care of the patient occurs in a collaborative manner. During the entire practicum, MLS students are required to document one interprofessional interaction with a health professional outside of the laboratory. Such interactions include but are not limited to calling a critical test result to a nurse, discussing sample recollection with a phlebotomist, taking a call from the physician who ordered a test, etc. The goal of this assignment is to make each student aware of their future anticipated communication with other health professionals.

Student Name: _______________________________________________________________

Event Date: ______________________ Clinical Site/Institution: ________________________

Clinical Rotation (Check): hematology __ blood bank ___ chemistry ___ microb. __ phleb ___

Instructor who witnessed the interaction (Signature): __________________________________

Health Professional/s with whom the interaction occurred (for example physician, nurse, respiratory therapist, etc.): ________________________________________________________________

Description of the event (keeping in mind patient’s confidentiality):

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

Student’s comments/perceptions (use back of the page if needed):

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

The form should be returned by the student to MLS Program Director at the end of practicum as hard copy or via email.
Old Dominion University
MLS 404, 406, 454, & 452 Clinical Practica
Student Oral Presentations Evaluation Form

Presenter’s Name

Title

<table>
<thead>
<tr>
<th>Rating Scale:</th>
<th>Excel. = 5</th>
<th>Good = 4</th>
<th>Sat. = 3</th>
<th>&lt; Sat. = 2</th>
<th>Poor = 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criteria:</td>
<td>Exceeds</td>
<td>All Met</td>
<td>Most Met</td>
<td>Some Met</td>
<td>Few Met</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Total</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Grade = Total x 2</th>
</tr>
</thead>
</table>

Note: Complete in Trajecsys and report presentation grade on Practicum Grade Form.
### 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.

<table>
<thead>
<tr>
<th>Student Name:</th>
<th>Instructor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date:</td>
<td>Competency Remediated</td>
</tr>
<tr>
<td>Competency number:</td>
<td></td>
</tr>
<tr>
<td>Competency number:</td>
<td></td>
</tr>
<tr>
<td>Competency number:</td>
<td></td>
</tr>
<tr>
<td>Competency number:</td>
<td></td>
</tr>
<tr>
<td>Competency number:</td>
<td></td>
</tr>
</tbody>
</table>

**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 CANVAS course. The link may be accessed multiple times for multiple instructors.

<table>
<thead>
<tr>
<th>Site</th>
<th>Practicum Course</th>
<th>Number &amp; Name</th>
<th>Date</th>
<th>Clinical Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Sometimes Agree &amp; Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Unable To Judge</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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 via email prior graduation.

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Sometimes Agree &amp; Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>Unable To Judge</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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 competed 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 complete the form in Trajecsys or fill out the hard copy, sign and submit via link in MLS
457. Alternatively, provide as a hard copy to:

Medical Laboratory Science Program
School of Medical Diagnostic & Translational Sciences
2118 Health Sciences Building
Old Dominion University
Norfolk, VA 23529
## Alumni Registration Form

(to be provided to Program Director prior graduation, preferably via link in MLS 457)

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>UIN</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td>Home</td>
</tr>
<tr>
<td></td>
<td>Work</td>
</tr>
<tr>
<td></td>
<td>Cell</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>FAX</td>
<td>Non-ODU E-mail Address</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of Graduation</td>
<td></td>
</tr>
<tr>
<td>Employer</td>
<td></td>
</tr>
</tbody>
</table>

**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)\textsuperscript{CM}MB\textsuperscript{CM}
Associate Professor and Program Director
Medical Laboratory Science
School of Medical Diagnostic & Translational Sciences
Old Dominion University
College of Health Sciences
4608 Hampton Blvd, Rm 2122
Norfolk, VA 23508
757-683-6039
bkraj@odu.edu

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