PROGRAM GOAL – Clinical Skills

The OSU Medical Laboratory Science Program will prepare entry level medical laboratory scientists who will provide accurate results of medical laboratory testing by performing analysis, reviewing and interpreting results, maintaining equipment, and problem solving. This goal will be achieved by:

OBJECTIVE 1: The entry level MLS will perform diagnostic laboratory analysis in accordance with the established laboratory procedures and professional standards of practice without error of clinical significance. This implies the ability to:

- Employ laboratory criteria for specimen acceptance
- Handle specimens according to established laboratory criteria to prevent health hazards or the introduction of clinically significant error in test results
- Set up equipment for routine use
- Prepare reagents and standards suitable for use in the clinical laboratory
- Calculate test results and convert them to a form meaningful in patient assessment
- Interpret and/or confirm test results when appropriate
- Make decisions based on established protocols for initiating additional testing of abnormal results when necessary
- Perform tests within a time period necessary for clinical relevancy
- Perform the following competencies in the clinical area specified:

o Clinical Chemistry
  - Perform analysis of chemical analytes in blood and other body fluids
  - Evaluate physiological specimens for the presence of drugs/toxins
  - Correlate the level of chemical constituents in the body with potential disease states

o Clinical Microbiology
  - Perform analyses on direct clinical smears
  - Culture, isolate, and identify bacteria from clinical specimens
  - Perform analyses on fungal microscopic preparations
  - Prepare and perform analyses on parasitic microscopic preparations
  - Correlate laboratory results with infectious disease processes.

o Clinical Hematology and Coagulation
  - Perform analysis of chemical constituents and formed elements of blood
  - Microscopically detect cellular abnormalities in blood
  - Perform laboratory evaluation of hemostatic mechanisms
  - Correlate hematologic data with metabolic processes and disease states
  - Culture, photograph, and karyotype chromosomes

- Immunohematology
  - Perform analyses resulting in accurate typing and antibody identification of donor and recipients
  - Assure donor and recipient compatibility
  - Perform necessary immunohematologic investigations for serological and clinical complications
  - Prepare and evaluate blood components for transfusion
  - Discuss the indications for transfusion of red cells, platelets, and plasma components
  - Discuss the use of cellular therapy and the potential serological implications

- Immunology
  - Perform, read and interpret serologic tests for the presence of antibodies, antigens and/or specific proteins
  - Correlate laboratory results related to the immune system with metabolic processes and disease states
  - Perform analysis for cell markers on viable lymphocytes

- Microscopy
  - Perform analysis of the physical, chemical and microscopic constituents of urine
  - Perform cellular counts/differentiation and formed element identification for major body fluids
  - Correlate urine/fluid laboratory data to potential disease states

- Phlebotomy
  - Collect acceptable specimens for laboratory evaluation according to best practice and applicable regulations
  - Maintain patient safety and specimen integrity during blood collection

- Molecular
  - State the basic principles of various molecular techniques used in medical laboratory science
  - State the clinical application of molecular techniques as used in medical laboratory science

OBJECTIVE 2: The entry level MLS will maintain laboratory equipment in accordance with laboratory procedures to the extent that laboratory safety and test results without error of clinical significance are assured. This implies the ability to:

- Provide a system for monitoring use, inventory, and maintenance of equipment and instrumentation
- Order anticipated parts and materials
- Provide preventative and corrective maintenance of instruments and equipment
- Provide for repair or service as indicated