



Online Clinical Competency Checklist - MLS 2213 Principles of Clinical Chemistry II

LABORATORY CLINICAL EXPERIENCE OBJECTIVES

Last semester in MLS 2211 the student studied the following topics and has completed lab practice sessions which relate to:

- Reagent preparation
- Laboratory mathematics (including conversions)
- Water and glass quality standards
- Dilution protocols
- Calibration and Quality Control concepts
- Clinical chemistry basics of: carbohydrates, Heme metabolism, non-protein Nitrogen compounds, electrolytes, and blood gases

This semester the student will study and complete the laboratory experience which relates to these topics:

- Clinical Endocrinology including common testing methods and clinical correlations
- Clinical enzymology including major cardiac, hepatic, and pancreatic enzymes and markers
- Analytical principles used in Toxicology, TDM, and Endocrinology
- Clinical applications of Toxicology and Therapeutic Drug Monitoring
- Clinical application of numerous nutrient and vitamin assays
- Analytical application of hemoglobin analysis
- Analysis of body fluids

It is understood that the student may be introduced to methodologies and concepts not covered in this semester's course in the daily workload. Instrument knowledge and competency should be based on instrumentation used at the student's clinical facility, while clinical correlation competency should be based on the concepts covered in this semester's course.

The student should perform the following tasks (as deemed appropriate by the clinical facility):

- Perform Routine Quality Control procedures on all clinical chemistry analyzers.
- Reconstitute controls and reagents used in the chemistry section of the laboratory.
- Become familiar with general laboratory and chemical safety practices.
- Participate in instrument maintenance (daily, weekly and monthly).
- Participate in instrument troubleshooting.
- Recognize common interferences or clinically unrealistic results encountered.
- Perform routine testing of patient samples (previously analyzed samples may be used).
- Participate in the reporting of results including STATs and critical values.
- Perform dilutions (Primary and secondary).
- Participate in the calibration of analyzers.
- Be familiar with validation processes used in the lab for new instrumentation or analytes.

Students should work together with their respective mentors to complete the listed objectives. Accuracy, precision, timely reporting of test results, and demeanor must comply with the laboratory's acceptable standards. While working in the laboratory, the student must meet laboratory standards for work habit skills in patient confidentiality, communication skills, laboratory safety, universal precautions, waste disposal, and equipment/work area maintenance. It is requested that the student's laboratory competency evaluation be completed by the clinical mentor **in the presence of the student** so as to allow verbal feedback to the student regarding the student's progress and performance.

Note: As part of the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) accreditation regulations, no student may engage in **service work** during his/her clinical experience. All laboratory test results generated by students during their clinical hours must be directly supervised by clinical laboratory staff. While the student is performing their clinical hours, they must be performing duties as a student, and not an employee. **Definition of Service Work:** Providing or generating results of clinical tests on patient samples without direct supervision of clinical staff or supervisor managers which exceeds the expected component required for the educational process.

Student: _____ Wildcat ID # _____

LEVELS OF ACHIEVEMENT/SCORING KEY

- 1: Discussed: Process was discussed, principle explained, student acknowledges an understanding of the process or principle.
- 2: Demonstrated: Process has been performed and demonstrated by the practicum instructor. Student has observed demonstration and has been allowed to ask questions as needed. The student acknowledges an understanding of the process or principle by verbally explaining the process or principle back to the practicum instructor.
- 3: Practiced: Student has ***practiced*** the process under the direction and maximum supervision of the practicum instructor. The student demonstrates knowledge of how to perform the process or task by actual performance under direct, maximum supervision, but without having to demonstrate any particular competency at that task or process.
- 4: Maximum Supervision: The student has performed the process under the direct, maximum supervision of the practicum instructor, and with the level of competency required by the laboratory for that task or process.
- 5: Minimum Supervision: The student can perform the process satisfactorily with only minimum or non-direct supervision by the practicum instructor, and the performance meets the level of competency required by the laboratory for that task or process.
- N/A: Not Available: The nature of the laboratory does not allow the student access to the equipment/test method.

Note: The competencies will be graded for a total of 100 pts. Points will be deducted for competency categories that are not met. If an item is not available at the lab, please N/A that area so the student does not lose points. If something is not available, but was discussed with the student, please write, "1 – N/A". Students must achieve a minimum of 80% on their competency checklist in order to pass. **Mandatory items are denoted as "M" on the checklist, if a mandatory item cannot be completed, it must be cleared with the instructor.**

For questions about this competency checklist, contact the instructor, Dr. Scott Moore, at mmoore@weber.edu.

Please have all mentors sign and date below.

Name of Facility: _____

Mentor Printed Name _____ Initials _____

Mentor Signature _____ Date _____

Mentor Printed Name _____ Initials _____

Mentor Signature _____ Date _____

Mentor Printed Name _____ Initials _____

Mentor Signature _____ Date _____

Comments:

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General Laboratory Concepts	Mandatory	Expected Score	Student Score	Date complete	Mentor initial
Identify correct specimen types as specified by the clinical facility's requirements.	M	5			
Discuss proper specimen collection and storage for routine chemistry assays.	M	4			
Identify physical characteristics of samples that may interfere with testing.	M	5			
Properly reconstitute control or reagents using pipettes routinely used in the lab.	M	5			
Demonstrate understanding and proper use of pipettes used in the lab.	M	5			
Perform dilutions & calculations on patient samples (95% accuracy of previously analyzed samples)	M	5			
Perform daily, weekly, and monthly maintenance on an instrument in your laboratory.	M	4			
Perform QC procedures in accordance with the clinical institution's policy.	M	5			
Correctly document actions taken when results are not within acceptable limits.	M	5			
Interpretation and Acceptance of Results					
Discuss recording, reporting, and documenting results.	M	5			
Explain "panic values" or critical values". Demonstrate how & when to report them.	M	5			
Explain "linear limits", "linear ranges" or "reportable ranges" and demonstrate how to handle and report samples outside these limits.	M	5			
Unit 7: Amino Acids and Proteins					
Perform Total Protein and Albumin assays. Calculate A/G ratios.	M	5			
Perform Ammonia, BUN, Creatinine & uric acid assays (serum/plasma & urine).		5			
Perform and manually calculate Creatinine clearances and 24 hour excretions.		5			
Perform or discuss protein electrophoresis		5			
Perform or discuss Thin Layer Chromatography amino acid separations.		5			
Unit 8: Clinical Enzymology					
Perform all enzyme assays routinely performed in your laboratory.	M	5			
Recognize interfering factors associated with the analysis of enzymes.	M	5			
Unit 9: Endocrine Function Studies					
Perform any Endocrine function assays performed in your lab.	M	5			
Perform or discuss Thyroid surveys and correlation of results.	M	5			
Unit 10: Analytical Principles for Toxicology and TDM					
Perform TDM or Toxicology analysis on instrumentation routinely used in your lab.	M	5			
Unit 11: Heme Derivatives					
Demonstrate understanding and correlation of numerous hemoglobin assays	M	5			
Perform Neonatal and Adult Bili.		5			
Demonstrate understanding of specimen integrity issues with collection of bilirubin.	M	5			

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Unit 12: Body Fluid Analysis	Mandatory	Expected Score	Student Score	Date complete	Mentor initial
Demonstrate understanding and correlation of numerous body fluids and how to process them	M	4			
Perform the standard body fluid analysis assays or discuss where they are processed for your laboratory		5			
Student demonstrates honesty by:					
Maintaining strict patient confidentiality	M	5			
Accepting control values only when within acceptable limits	M	5			
Performing and documenting daily & weekly maintenance procedures, preventative maintenance, temperature checks, etc.	M	5			
Completing all procedures in adherence to laboratory SOPs, taking no shortcuts or unauthorized modifications of procedure	M	5			
Student demonstrates personal interactive skills and proper professional behavior by:		Expected Score	Student Score	Date complete	Mentor initial
Working with co-workers in a positive manner, promoting productive workflow.	M	5			
Refraining from making statements or actions that represent sexual, ethnic, racial, or homophobic harassment.	M	5			
Willingly and consistently using appropriate personal safety devices when handling caustic, infectious, or hazardous materials.	M	5			
Completing all required tasks and remaining in the work area when scheduled.	M	5			
Being punctual whenever scheduled.	M	5			
Adhering to current dress and appearance in the laboratory setting.	M	5			
Cleaning the work area when leaving the laboratory, returning supplies to appropriate storage location, & disinfecting all work areas used by the student.	M	5			
Student demonstrates professional responsibility by:					
Correctly reporting all patient test values, as well as recognizing and correctly reporting all patient critical test values.	M	5			
Resolving discrepancies in specimen labeling, handling, or collection before reporting results.	M	5			
Hours completed by student:					
Minimum time required for this lab competency is 80 hours. Mentors are encouraged to increase the number of hours dependent on individual student need. Please verify the number of hours your student spent:		80 hours			
Based on performance is this the type of person you would consider for potential employment? Y <input type="checkbox"/> N <input type="checkbox"/>					