

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: MDL 110

Credits: 3

Course Title: Urinalysis and Body Fluids

Course Description: Studies the gross, chemical, and microscopic techniques used in the clinical laboratory. Emphasizes study of clinical specimens, which include the urine, feces, cerebrospinal fluid, blood, and body exudates. Introduces specimen collection and preparation. Prerequisite or Co-requisite: MDL 101. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose: Provides theory and techniques required to collect, handle, and conduct tests on urine and various body fluids. Theory and tests are related to disease states and diagnosis. Topics include theory of urinalysis; physical, chemical, and microscopic urinalysis; urinalysis and disease state correlation; special urinalysis and related testing; body fluids tests; and safety and quality control. Provides correlation between other clinical testing being simultaneously performed in laboratories to include chemistry, hematology, and microbiology.

Course Prerequisites and Co-requisites:

Prerequisite or Co-requisite: MDL 101

Student Learning Outcomes:

Upon completing the course, the student will be able to

- a. Explain the proper technique, QA/QC for using a multistix reagent strip;
- b. Describe the test principle, interpretation, normal value, clinical significance (if applicable), and sources of error (false positives and negatives) of each of the test areas on a multistix reagent strip and the confirmatory tests;
- c. Describe the proper collection, physiology, test principle, interpretation, normal value, clinical significance, and formation of the following fluids: CSF, synovial, semen, feces, amniotic, exudates, and transudates;
- d. Detect and troubleshoot sources of testing error, contamination, and collection error for body fluid isolates;
- e. Describe the steps in preparing a fluid specimen and performing sediment examination under the microscope;
- f. Identify the distinguishing morphologic characteristics of formed elements in fluid isolates and describe their clinical significance;
- g. Describe normal and abnormal values for macroscopic fluid analysis of urine, CSF, synovial, semen, feces, amniotic, exudates and transudates;
- h. Given a specific gravity reading performed on a diluted sample, calculate the actual specific gravity;
- i. Given a cell count reading performed on a diluted sample, calculate the corrected actual cell count;
- j. Define and describe the symptoms, causes, and expected urinalysis findings in major renal disorders;
- k. Use and create case studies to recognize a renal disorder based upon clinical findings;
- l. Identify and describe the functions of the parts of the urinary system;

- m. Define threshold substances. Recognize change in value; select appropriate tests to measure;
- n. Describe and comply with the correct personal protective equipment standards for laboratory personnel; and
- o. Select the appropriate container for disposal of sharps, biological, and hazardous wastes.

Major Topics to Be Included:

- a. Safety in the clinical lab
- b. Renal function
- c. Introduction to urinalysis
- d. Physical examination of urine
- e. Chemical examination of urine
- f. Microscopic examination of urine
- g. Renal diseases
- h. Cerebrospinal fluid
- i. Synovial fluid
- j. Semen analysis
- k. Serous fluid
- l. Amniotic fluid
- m. Fecal analysis

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