

1 **Common Course Outline**
2 **MLTC 200**
3 **Clinical Chemistry and Urinalysis/Body Fluids**
4 **Five Semester Hours**
5

6 **The Community College of Baltimore County**
7

8 **Description**
9

10 **MLTC 200 – Five credits - Clinical Chemistry and Urinalysis/Body Fluids**

11 explores the analyses of the chemical constituents of the blood and other body fluids as
12 well as the principles and procedures of the complete urinalysis. The course includes
13 specimen collection and processing, correlation of normal and pathologic physiology, and
14 diagnostic implications in health and disease. Laboratory exercises emphasize analytical
15 accuracy and precision, using both manual techniques and automated laboratory
16 instruments. Other body fluids include cerebrospinal, synovial, serous, seminal, amniotic,
17 and fecal analysis. 4 lecture hours per week, 3 laboratory hours per week. Prerequisites:
18 BIOL 109, BIOL 110, CHEM 146/147 or CHEM 121/122, ENGL 101, and MLTC 101.
19

20 **Overall Course Objectives**
21

22 Upon completion of this course, students will be able to:
23

- 24 1. describe the relationship of biochemical analytes in the clinical setting to the
25 understanding of both the pathology and the physiology of the human body;
- 26 2. describe the requirements for collection, storage and handling methods of
27 specimens and the adverse changes that can result if specimens are improperly
28 collected or stored;
- 29 3. explain the principles and methodologies of the many diagnostic tests performed
30 in the clinical chemistry and urinalysis laboratories to identify normal and disease
31 processes;
- 32 4. identify and explain the major tests performed on body fluids (including
33 cerebrospinal fluid, serous, synovial, amniotic, gastric, semen, feces and sweat) in
34 the hematology, chemistry, microbiology, and immunology laboratories;
- 35 5. demonstrate understanding of correlating lab test results from serum, urine and
36 other body fluid analyses with normal and disease processes
- 37 6. perform and interpret manual chemistry and urinalysis tests;
- 38 7. identify pre-analytic variables that adversely affect procedures and results;
- 39 8. evaluate quality control procedures used in chemistry and urinalysis testing; and
40 9. demonstrate an understanding of laboratory safety and standard precautions.
41

42 **Major Topics**
43

- 44 I. Clinical Chemistry
- 45 A. Quality Control and Statistics

- 46 B. Techniques and Instrumentation
- 47 C. Amino Acids and Proteins, including Enzymes
- 48 D. Carbohydrates
- 49 E. Lipids and Lipoproteins
- 50 F. Nonprotein Nitrogen
- 51 G. Electrolytes
- 52 H. Blood Gases, pH, Buffer Systems
- 53 I. Liver Function
- 54 J. Endocrinology
- 55 K. Cardiac Function
- 56 L. Renal Function
- 57 M. Toxicology and Therapeutic Drug Monitoring
- 58 II. Urinalysis
 - 59 A. Physical Examination of Urine
 - 60 B. Chemical Examination of Urine
 - 61 C. Microscopic Examination of Urine
 - 62 D. Renal Diseases
 - 63 E. Metabolic Diseases
- 64 III. Other Body Fluids
 - 65 A. Cerebrospinal Fluid
 - 66 B. Semen
 - 67 C. Synovial Fluid
 - 68 D. Serous Fluid
 - 69 E. Amniotic Fluid
 - 70 F. Fecal Analysis

71

72 **Course Requirements**

73

74 Grading/exams: Grading procedures will be determined by the individual faculty

75 member, but, at minimum, will include the following:

- 76
- 77 Weekly laboratory reports
 - 78 Weekly homework “critical questions” assignments
 - 79 Three lecture quizzes
 - 80 Three lecture exams
 - 81 Two lab proficiency exams
 - 82 Final cumulative lecture examination
 - 83 Final Lab Proficiency Assessment

84

85 **Other Course Information**

86

87 This course is a Medical Laboratory Technology program core course.