

1 **Common Course Outline**  
2 **MLTC 200**  
3 **Clinical Chemistry and Urinalysis/Body Fluids**  
4 **Five Semester Hours**  
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6 **The Community College of Baltimore County**  
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8 **Description**  
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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, ENGL 101, and MLTC 101.  
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20 **Overall Course Objectives**  
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22 Upon completion of this course, students will be able to:  
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- 24 1. apply 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. explain 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. distinguish the principles and methodologies of the many diagnostic tests  
30 performed in the clinical chemistry and urinalysis laboratories to identify normal  
31 and disease processes;
- 32 4. recognize and discuss 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. perform and interpret manual chemistry and urinalysis tests;
- 36 6. recognize pre-analytic variables that adversely affect procedures and results;
- 37 7. evaluate quality control procedures used in chemistry and urinalysis testing;
- 38 8. demonstrate an understanding of laboratory safety and standard precautions; and
- 39 9. correlate laboratory test results from serum, urine and other body fluid analyses  
40 with normal and disease processes.  
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42 **Major Topics**  
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- 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

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### 72 **Course Requirements**

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

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

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- 77 4 Quizzes
  - 78 3 didactic exams
  - 79 Weekly Laboratory Reports
  - 80 Weekly Homework and Case Studies
  - 81 Comprehensive Final Exam
  - 82 Final Lab Proficiency Assessment

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### 85 **Other Course Information**

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