

Minnesota State College Southeast

MEDL 1130: Clinical Chemistry 1

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites:

This course requires the following prerequisite

CHEM 2518 - General, Organic & Biochemistry I

Corequisites: None

MnTC Goals: None

This course covers the analysis of various chemical constituents of plasma, serum and other body fluids. The physiology and clinical significance of carbohydrate metabolism, bilirubin metabolism, lipids, renal function, enzymes, liver function and cardiac function will be presented. Students are introduced to the principles and methodologies of clinical chemistry laboratory analysis. Quality assurance, quality control and basic laboratory procedures will be discussed and practiced. (Prerequisite: CHEM 2518 and must be a Medical Laboratory Technician accepted student) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 05/07/2012 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Describe evidence based medicine, quality assurance, quality control, and method validation in the clinical chemistry laboratory
2. List and perform basic analytical techniques used in the clinical chemistry laboratory
3. Illustrate basic anatomy and physiology as it relates to the analytes tested in the clinical chemistry laboratory
4. Demonstrate the correlation between analytes measured in the clinical chemistry laboratory and disease states

D. LEARNING OUTCOMES (General)

1. Define evidence based medicine
2. Correlate quality assurance and quality control in the laboratory
3. Create and evaluate Levy Jennings charts for quality control
4. Perform method validation using basic linear regression software
5. Outline the testing methods and techniques used in the clinical chemistry laboratory
6. Relate amino acids and proteins and describe their analysis by electrophoresis
7. Describe the non-protein nitrogenous compounds
8. Investigate the major enzymes and isoenzymes used for diagnostic purposes
9. Illustrate hemoglobin synthesis and describe the porphyrin abnormalities
10. Describe lipoprotein analysis and the ability to predict cardiovascular risk
11. Examine the relationship between carbohydrate metabolism and disease
12. List the major electrolytes of the body
13. Outline the analytes used in the assessment of nutrition and digestive function
14. Correlate basic anatomy and physiology as it relates to the values obtain through laboratory testing of clinical chemistry analytes
15. Demonstrate the automated analysis of various chemical constituents of plasma, serum and other body fluids
16. Relate abnormalities of chemical constituents to cardiovascular, renal, liver, gastrointestinal, and bone disorders and diseases
17. Adopt proper policies and procedures provided to complete clinical chemistry testing in the laboratory setting
18. Given a common chemistry analyte:
 - a. Critique a primary research article using evidence based medicine principles.
 - b. Compose a laboratory procedure.
 - c. Construct and deliver an informative PowerPoint presentation about the analyte

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted