

**LANCASTER GENERAL COLLEGE OF NURSING & HEALTH SCIENCES  
CLINICAL LABORATORY SCIENCE PROGRAM**

**SYLLABUS  
Spring 2007**

- I. Title: **CLS 132 Clinical Chemistry**
- II. Course Description: This is a continuation of CLS 131, a lecture course covering all areas of Clinical Chemistry. General principles of chemical analysis, instrumentation, and quality control are reviewed. Analyses performed in the clinical chemistry laboratory are grouped according to function or organ system. Major groupings include carbohydrates, proteins, renal testing, lipids, liver/cardiac function, enzymology, toxicology, endocrinology, and electrolytes/acid-base balance. The principles of testing methods and the physiologic and biochemical changes that occur in disease states are covered.
- III. Prerequisite: Admission to the Clinical Laboratory Science program
- IV. Placement: Spring Semester
- V. Time Allotment: 48 lecture hours
- VI. Faculty: Jeremy F. Talbert, MT(ASCP)
- VII. Credits: 3.0
- VIII. Evaluation: Exams and quizzes are given during the course.  
Minimum passing grade for this course is 74%.
- IX. Textbook: Michael L. Bishop et al. Clinical Chemistry, 5<sup>th</sup> edition, Lippincott, Williams, & Wilkins, 2005
- X. References: **Textbooks:**  
Burtis & Ashwood. Tietz's Fundamentals of Clinical Chemistry, W.B.Saunders & Co., 4<sup>th</sup> edition, 1996  
Kaplan & Psece. Clinical Chemistry: Theory, Analysis, Correlation, C.V. Mosby Co, 4th edition, 2003  
J.B.Henry. Clinical Diagnosis & Management by Laboratory Methods, W.B.Saunders, 20<sup>th</sup> edition, 2002
- Additional Educational Materials:**  
Videotapes: Cystic Fibrosis  
CAI: Electrophoresis Tutor  
Extensive collection of ASCP Check/Tech Samples
- XI. Course Objectives: By the conclusion of this course, the student must:
1. Be familiar with operation of the instruments in the Chemistry Lab and discuss basic principles of instrumentation, calibration, quality control, and common problems encountered with these instruments.
  2. Describe the lab tests which are of use in evaluation of organ function status and evaluate sample test results to determine common disease

- states. This should include cardiac and renal profiles, liver function testing, and tests for pancreatic, thyroid and gastric function.
3. Describe normal and abnormal physiology, testing principles and methodologies, and interpretation of results for each of the following:
    - Carbohydrates and their metabolites
    - Non-protein nitrogenous substances
    - Proteins, amino acids, and enzymes
    - Lipids and lipoproteins
  4. Explain the importance of acid-base balance and describe how it is maintained; include the role of electrolytes in this process; evaluate or interpret sample blood gas results.
  5. Discuss toxicology and therapeutic drug monitoring with respect to substances commonly measured and methods of analysis.
  6. Discuss the nature and action of hormones and the control of hormone secretions; describe specific areas of testing including adrenocortical hormones, thyroid and pituitary hormones, and insulin.
  7. Discuss the roles vitamins and minerals play in maintaining health.
  8. Describe an effective QA/QC program for the Chemistry Lab; evaluate sample QC results to determine validity and deviations from the norm explaining corrective action needed in each case.

XII. School Policies: Students are held accountable for all policies in the Student Handbook and any revisions made to those policies during the academic year.

- XIII. Class:
- A. Importance of Attending Class  
Healthcare education comprises more than just private reading and passing of exams. Students shall recognize that active and informed participation in class is essential to the development of intellectual abilities and scholarly growth. Students must also recognize the importance, for both the present and future, of achieving an academic record that reflects their intellectual ability. Such records are seldom achieved without regular attendance and participation in class activities. Attendance will be taken.
  - B. Student Responsibility for Missed Material  
Students are responsible for all material presented and announcements made in class, regardless of attendance. It is the student's responsibility to obtain materials and assignments if absent
  - C. Unit Examinations  
Examinations should only be missed in extenuating circumstances with approval of the instructor. A student who misses an exam will be required to make up the exam on the next day of lecture. Contact the appropriate instructor prior to the next lecture day to make arrangements to take the exam. A student who misses an exam, without instructor approval, will have ten percent (10%) deducted from the grade achieved on the exam. Example: The exam is worth sixty (60) points; the student takes the exam and achieves a grade of 52/60. The score of 52 is then decreased by 10% or five points; thus, the grade on the exam will be 47/60. An alternate exam may be given for the makeup exam.

D. Class Behavior

Once class has started, the instructor has the prerogative not to admit students into lecture. Students will be dismissed from class for any inappropriate behavior.

XIV. Other:

Academic Dishonesty and Plagiarism

Academic dishonesty violates the spirit and purpose of an academic community and is therefore subject to disciplinary action. Academic dishonesty includes cheating on exams and unauthorized duplicate submission of work.

Plagiarism is an act of academic dishonesty. Any work submitted that is not your own is plagiarism. In preparing assignments, you must acknowledge in writing any use of outside sources or any assistance you received in preparing an assignment.

If an instructor believes a student has committed an act of academic dishonesty or has plagiarized material, the instructor will award a failing grade for that assignment. If the occurrence is during an exam, the student will receive a zero for that portion of their grade and must leave the room.

If the student disagrees with this decision, the student may follow the grievance procedure.

**PLEASE NOTE:** Changes to the syllabus may be needed as the course progresses. Students and any other individuals who may be affected by any changes will be notified promptly after any change is made.