

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

SYLLABUS

CLS 101: LABORATORY SCIENCE SEMINAR - Orientation

YEAR: 2006-2007

GENERAL STRUCTURE:

This is a non-credit course designed to introduce the student to the hospital and clinical laboratory environment. It consists of approximately 42 contact hours at the beginning of the clinical year. Methods of instruction include tours, lectures, audio-visual material and laboratory practice in selected areas. Topics covered include:

Fire/Electrical Safety	Pipettes and Pipetting Devices
Chemical Safety	Introduction to Blood Cells
Bloodborne Pathogen Safety	Confidentiality and Ethics
Microscopes: Use and Care	Introduction to Computers
Basics of Centrifugation	Medical Terminology

Lab Math

Each student receives information and student handbooks which specify rules and regulations for the college and CLS program. This is reviewed with the students. In addition, videos, computer-based instruction, outlines, and other printed materials as well as lectures are used to cover the topics listed above. Students also obtain student identification badges.

INSTRUCTORS: Anne Cousar, MT(ASCP), SH
Wendy Gayle, MS, MT(ASCP), Program Director

EVALUATION:

Students are required to complete an orientation exam with a grade of 74% or higher. Students must also pass competency assessments. Failure to pass the above will result in remedial training and reassessment/retest. All students must receive a grade of PASS in this section in order to continue the course.

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OBJECTIVES FOR ORIENTATION

At the end of the Orientation period, the CLS student should be able to satisfactorily meet the following objectives classified according to subject:

Microscopy:

1. label the following microscope parts and give a general explanation of function of each:
nosepiece condensor mechanical stage
ocular arm in-base illuminator
objective iris diaphragm field diaphragm
neutral density filter
2. explain the relationship between numerical aperture, refractive index and resolving power in connection with a light microscope; calculate magnification and describe where magnification values of oculars/objectives are found
3. trace the path of light through a microscope from the light source to the eye; explain why a blue filter is used on the source of illumination for some scopes
4. name the three types of objectives commonly included on a lab microscope and state the magnification of each
5. effectively utilize the microscope for identification of microorganisms, blood cells or formed elements in urine (P)**

Centrifugation:

6. list the major components of a centrifuge
7. define RCF and list the formula for calculation of RCF
8. compare horizontal vs. fixed angle centrifuge rotors as to speed achieved and nature of sediment obtained.

Pipetting and Pipetting Devices:

9. identify and explain the use of volumetric and serological pipettes
10. distinguish between “to deliver” and “to contain” pipettes
11. describe an acceptable procedure for calibration of automatic pipettes and indicate a time schedule for doing this
12. demonstrate to an instructor correct pipetting technique including choice of appropriate pipette for a solution/situation and use of safety bulbs (P)**

Fire/Electrical Safety:

13. describe or demonstrate in a simulated fire drill the procedure for reporting, confining and putting out a fire; demonstrate the use of a fire extinguisher or fire blanket as requested by the instructor (P)**
14. identify the four types of fire extinguishers and types of fires for which each may be used
15. identify the locations of the fire alarms, safety showers, and eye washes in the lab; describe the evacuation routes from the Student Lab in event of a fire
16. explain the importance of regular inspection of electrical equipment

Bloodborne Pathogen Safety:

17. describe the role of OSHA in providing an employee with a safe workplace
18. list the basic requirements of a lab exposure control plan; justify the concept of universal precautions
19. list the common engineering controls and work practice controls in the clinical lab
20. identify the proper methods for housekeeping and the handling of regulated waste and contaminated laundry as described by this regulation
21. locate and use appropriately the protective personal clothing and equipment available in the work setting (P)**

Chemical Safety:

22. recognize and classify various types of hazards -electrical, biological, chemical, radiation - and describe how to safely store and handle hazardous material
23. recognize/identify the various types of warning signs/ labels including the NFPA system
24. describe the purpose of Right-To-Know legislation and list employee's rights under the RTk law
25. explain the importance of PPE in a chemical hygiene plan; recognize and report unsafe working conditions to a supervisor
26. demonstrate the procedure for reporting major accidents, spills or exposures and/or for cleaning up or containing small accidents, spills or exposures (P)**

Introduction to Blood Cells:

27. describe the major function of the red cells, white cells and platelets
28. list the five white blood cell types in order from most commonly found to least commonly found; describe the major function of each type: neutrophil, basophil, eosinophil, monocyte, and lymphocyte
29. using a stained blood film, identify the five WBC types to an instructor (P)**
30. perform a 100-cell differential count and platelet estimate on the Wright-stained slide presented, comparing obtained results to the reported count - accuracy not graded (P)**

Confidentiality:

31. discuss the importance of maintaining patient confidentiality at all times
32. discuss what the scope of confidentiality means to you
33. list two steps that can be taken to improve confidentiality

Introduction to Computers

34. define the following terms:
cursor modemsoftware hardware
prompt queue downtime delta check
mnemonic interface workcenter testing site
35. define LIS and HIS and briefly explain how these two are related
36. differentiate between accession #, medical record #, and financial #.
37. differentiate between input and output devices, giving several examples of each
38. list/describe some preanalytical, analytical, and post-analytical functions of a laboratory information system
39. explain what is meant by a database
40. access the LIS using individual security password and demonstrate use of OID for order inquiry (P)**
41. access bulletin boards using Outlook Web Access and demonstrate ability to read, respond to, and send messages via the hospital electronic mail system (P)**

** Psychomotor objectives

An orientation exam will be given to evaluate the theoretical portion and clinical observation will be used to determine whether students have mastered the psychomotor (P) portions. Passing grade for the exam is 74%.

[Syllabus-Orientation]