Clinical Laboratory Science Refresher Courses Overview

Welcome to the CLS Refresher Courses developed by the University of Nebraska Clinical Laboratory Sciences Program in partnership with the Nebraska Public Health Laboratory. These online education courses/modules are designed to educate laboratory professionals using a self-study format. An individual may choose to complete an entire course, e.g. Clinical Chemistry or only a few units, e.g. Carbohydrates, Lipids, etc.

The goal of these courses/units is to present a detailed overview of the topics relevant to the field of clinical laboratory science and management.

Course Structure
Each course is divided into several units. Some courses are further divided into modules. Each unit/module addresses a specific content area and uses a similar approach:

Objectives will provide the specific performances or actions the learner will be able to do after completing the instructional or learning activities within that module.

Assignments include the instructional content and evaluation tools:

1) **Learning activities** provided may take a variety of formats:
   a. Videostream(s) of topic presentations by speakers. (Handouts to accompany these will be available)
   b. Informational handouts to read with all pertinent information covered.
   c. Video clips of various laboratory procedures or techniques.
   d. Internet sites with appropriate learning material.
   e. Self-study handouts that encourage the learner pull significant information from additional resources, e.g. textbooks, internet, etc. This format provides information with blanks or questions for the learner to fill in. A self-study key will be available to check your responses.
   f. Exercises to apply the information to specific situations

2) **Self-assessments** are offered to reinforce the information presented in the learning activities. Questions on the self-assessment are directly linked to the learning objectives.

3) **Self-assessment keys** are available to help the learner determine if successful learning was accomplished.

4) **Units/Module quizzes** are available for learners desiring continuing education documentation. A score of 70% must be attained to receive CEUs for that module. The number of CEUs for each module is determined by the average amount of time to complete the learning activities. Quiz questions are directly linked to the learning objectives.

5) An **evaluation** is available to provide feedback on the modules you complete. Participants requesting CEUs will be required to complete a module evaluation.
Computer Requirements:
All participants must have access to a computer, printer and firewall-free Internet connection.

Recommended Computer Specifications:
Processor: 2.0 GHz Pentium/ Cleron/ AMD or higher
Memory: 512Mb RAM or higher
Storage: 40Gb Hard Drive or higher
Operating System: Windows XP (Home or Professional edition)
CD/DVD Drive: 48x CD-ROM Drive  12x DVD-ROM Drive  OR CD-R/RW (48x24x48) for mass storage
Web Browser: Internet Explorer 6.0 (or higher)
Internet Access: High Speed Cable Internet and active email account*
Software: Microsoft Office XP (includes Word, Excel, Power Point)

Free Software
Additional software is required for some components in these courses. These are available for free from the manufacturer’s website. We recommend that you install them on any computer you may use for these courses. There are links provided within each course to obtain this software. Examples include:
   Adobe: Acrobat Reader
   Real Systems: Real Player
   Apple: QuickTime Player
   Macromedia: Flash Player

Blackboard Navigation
When you log into Blackboard, click on the name of the CLS Refresher Course for which you are enrolled on the far right side of the screen, under ‘My Courses’. When the course opens up, links on the left side of the screen will allow you to review the ‘Course information’ and ‘Units’ to access specific modules. Modules may be listed under each unit.

NOTE: When watching videostream sessions, comments may be made about a specific page number in the handout. These mentioned page numbers may not exactly match the handout version you are using.

Textbook Resources
Accessibility to educational resources such as textbooks is highly recommended. There are many good resources available. A list of textbooks recommended by UNMC faculty is provided. New texts are continually being released, so this list is by no means exclusive.
**General Laboratory (coverage of all areas)**


**Blood Banking/Immunohematology:**


Textbook of Blood Banking and Transfusion Medicine, Rudmann, Sally, 2nd Ed., Elsevier Saunders, 2005


**Chemistry:**


**Hematology**

McKenzie, S.B., *Clinical Laboratory Hematology*, Pearson/Prentice Hall, 2004


Immunology


Microbiology


Urine and Body Fluids


Management/Laboratory Operations

(Many textbooks listed above have chapters/sections dealing with these topics)
