

# Common Course Outline

## MDAS 257

### Clinical Medical Assisting II: Specimen Collection Techniques and Analyses 4 Credits

## The Community College of Baltimore County

### Description

**MDAS 257** – Clinical Medical Assisting II: Specimen Collection Techniques and Analyses introduces medical laboratory regulations; proper use, maintenance, and storage of equipment; specimen collection techniques; and diagnostic testing procedures. Basic microbiology is addressed including nomenclature, classification, and microscopic visualization of certain microorganisms. This course is the same as OFAD 257.

**4 Credits:** 2 lecture, 3 laboratory hours per week

**Prerequisites:** MDAS 253 or OFAD 253 and consent of program coordinator

### Overall Course Objectives

Upon completion of this course students will be able to:

1. apply regulatory guidelines using various laboratory settings;
2. identify educational requirements for laboratory personnel;
3. identify equipment found in a medical laboratory;
4. demonstrate the proper use, maintenance, and storage guidelines for medical laboratory equipment;
5. describe and apply Clinical Laboratory Improvement Amendments of 1988 (CLIA '88) and Occupational Safety and Health Administration (OSHA) regulations regarding categories of testing, quality control, and exposure to hazardous chemicals;
6. evaluate venous status on simulator and other students in the classroom for appropriate puncture site;
7. perform venipuncture using vacuum tube system, syringe, butterfly, and capillary punctures using step-by-step-technique;
8. obtain a throat specimen for microbial testing;
9. perform CLIA '88 waived tests (quick strep and urine dip stick analyses);
10. obtain wound specimen for microbial testing;
11. demonstrate the collection of clean-catch urine on other students in the classroom setting;
12. perform chemical and microscopic examination of urine, and
13. perform and evaluate diagnostic hematology testing, specifically hemoglobin and hematocrit, white and red blood cell counts, blood typing, blood morphology, blood chemistry tests and blood serology using step-by-step techniques.

## **Major Topics**

- I. Introduction to the medical laboratory
  - a. Purpose of lab testing
  - b. Types of labs
  - c. Personnel
  - d. Lab departments
  - e. Panels of lab tests
  - f. Quality controls/assurances
  - g. Requisitions and reports
  - h. Specimen collection, storage and handling
  - i. Microscopes – introduction, care, and handling
- II. Safety and regulatory guidelines in the medical laboratory.
  - a. CLIA '88
    - i. Contents of the law
    - ii. Categories of testing
    - iii. Quality control
    - iv. Impact on medical assistants
  - b. OSHA
    - i. Regulations
    - ii. The standard for occupational exposure to hazardous chemicals in the lab
    - iii. Chemical hygiene plan
- III. Phlebotomy techniques
  - a. Review of the circulatory system
  - b. Equipment
  - c. Techniques for venipuncture and capillary puncture
  - d. IV therapy
- IV. Hematology in the medical laboratory
  - a. Hemoglobin and hematocrit
  - b. Hematologic
  - c. White and red blood cell counts
  - d. Platelets
  - e. Erythrocyte indices
  - f. Erythrocyte sedimentation rates
  - g. Wintrobe and Westergren methods
  - h. Automated hematology
- V. Urinalysis
  - a. Review of the Urinary system
  - b. Urine composition
  - c. Safety
  - d. Quality control
  - e. CLIA
  - f. Specimen types
  - g. Examination of urine
    - i. Chemical
    - ii. Microscopic
    - iii. Sedimentation rate

- VI. Basic microbiology
  - a. Classification
  - b. Nomenclature
  - c. Cell Structure
  - d. Equipment
  - e. Safety and microbiological specimens
  - f. Quality control
  - g. Collection procedures
  - h. Examination of bacteria
  - i. Culture media
  - j. Rapid ID systems
  - k. Sensitivity testing
  - l. Parasitology
  - m. Mycology
- VII. Special lab tests
  - a. Pregnancy tests
  - b. Infectious mononucleosis
  - c. Blood typing
  - d. PKU
  - e. TB
  - f. Blood glucose
  - g. Cholesterol and lipids
  - h. Blood chemistry tests

### **Course Requirements**

Grading procedures will be determined by the individual faculty member but will include the following:

#### **Grading/exams**

- Clinical skills demonstration and charting with 100% accuracy (skills accuracy is based on performing skills three consecutive times with no errors).
- Written essay (500 word minimum)
- Midterm exam
- Final exam

**Written Assignments:** Students are required to utilize appropriate academic resources.