COURSE DESCRIPTION

CLAB 419 - LABORATORY MANAGEMENT II
A continuation of Laboratory Management I. Focus is on preparing and reviewing technical procedures and policies, conducting interviews, reviewing resumes and cover letters, and becoming familiar with compliance issues, codes of conduct, job descriptions, evaluations and workflow analysis.

Block Objectives:
At the conclusion of Laboratory Management I and II the students will have had the opportunity to meet the following objectives:

- Discuss basic management concepts, functions and styles
- Discuss common mistakes made by managers. Interview a laboratory manager to gain insight on management styles, common lab management problems, and possible solutions to those problems.
- Define diversity, and explain the importance of recognizing and respecting diversity in the workplace
- Identify characteristics of each of Keirsey's four Temperaments
- Suggest methods for interacting with individuals based on their Temperament
- List the three domains of learning, including verbs commonly used to describe each level within each domain
- Construct a set of learning objectives
- Differentiate a policy from a procedure
- Prepare a technical procedure according to NCCLS guidelines
- List various components of a well constructed resume
- Discuss preparation for a successful interview
- Submit a cover letter and resume for a fictitious job
- When given a list of interview questions, choose whether or not the questions are appropriate according to the EEOC
- Define terms relating to compliance issues.
- When given a workplace scenario, choose whether the situation does or does not constitute a violation of a code of conduct.
- List several considerations when selecting a laboratory information system or new lab instrument.
- Outline a logical process in the selection of a LIS.
- Discuss basic considerations of human resource management regarding performance evaluations, workflow analysis and job descriptions.

CLAB 418 - LABORATORY MEDICINE CASE STUDIES
Independent study of laboratory medicine cases designed to correlate the student’s didactic knowledge with the clinical experience.

Block Objectives:
The student will be able to:
• Integrate theories learned in core and in various areas of the lab.
• Interpret laboratory results and correlate to disease process.
• Evaluate clinical relevance of results to the case presented.
• Recognize spurious laboratory results and formulate appropriate correction action.

CLAB 417 - BLOOD BANK/IMMUNOLOGY CLINICAL EDUCATION
Supervised practical application of coursework and experience in the areas of blood banking/immunology. Emphasis on principles, procedures, and quality assurance. Includes management practices and development of professional behavior.

General Block Objectives:
The objectives of the Blood Bank and Immunohematology Clinical Education course are to provide learning experiences that will result in the student possessing certain minimum job entry level competencies in the area of blood banking/immunology.

The student will:

• Practice the methods and develop the skills necessary to analyze specimens in a blood bank/immunology laboratory.
• Reinforce those theories learned in CORE and interrelated information obtained in various areas of the laboratory.
• Correlate quality control mechanisms in everyday laboratory function.
• Cultivate a professional attitude with colleagues in the laboratory and all hospital departments.
• Participate in continuing education during the course if available.
• Perform all of the competencies listed on the Blood Bank and Immunohematology Clinical Education Competency Checklists, achieving a cumulative competency level of 77% or greater in this course.

CLAB 416 - MICROBIOLOGY CLINICAL EDUCATION
Supervised practical experience in the microbiology laboratory. Emphasis on principles, procedures, and quality assurance. Includes management practices and development of professional behavior.

Block Objectives:
The objectives of the Microbiology Clinical Education are to provide learning experiences that will result in the student possessing certain minimum job entry level competencies in the area of microbiology.

The student will:

• Practice the methods and develop the skills necessary to analyze specimens in a microbiology laboratory.
• Reinforce those theories learned in CORE and interrelated information obtained in various areas of the laboratory.
• Correlate quality control mechanisms in everyday laboratory function.
• Cultivate a professional attitude with colleagues in the laboratory and all hospital departments.
Participate in continuing education during the course if available.
Perform all competencies listed on the Microbiology Clinical Education Competency Checklist and achieve a cumulative competency level of 77% or greater in this block.

CLAB 415 - HISTO-CYTO TECHNIQUES
Supervised practical application of coursework and experience in the areas of Histology-Cytology Techniques. Emphasis on principles, procedures, and quality assurance. Includes management practices and development of professional behavior.

General Block Objectives:
The objectives of the Clinical Education block are to provide learning experiences that will result in the student possessing certain minimum job entry level competencies in the area of Histo-Cyto Techniques.

The student will:

- Introduction to Cytology instrumentation
- Describe collection and scope of the Pap test
- Introduction to cervical cancer epidemiology, and the purpose of the Pap Test
- Introduction to urinary and respiratory cytology
- Introduction to thyroid cancer
- Introduction to breast cancer
- Introduction to histology instrumentation
- Background of histologic techniques
- Introduction to modern techniques
- Understanding of tissue preservation
- Understanding of tissue processing, staining
- Basic introduction to major organ histology
- Introduction to immuno-staining

CLAB 414 - LABORATORY MANAGEMENT I
This course focuses on knowledge and techniques needed to identify and resolve management problems in the clinical laboratory. Students will work independently to learn basic management concepts and techniques, how to successfully manage diversity issues, proper development of educational objectives, and guidance in the process of selecting a laboratory information system.

General Block Objectives:
At the conclusion of Laboratory Management I and II the students will have had the opportunity to meet the following objectives:

- Discuss basic management concepts, functions and styles
- Discuss common mistakes made by managers
• Interview a laboratory manager to gain insight on management styles, common lab management problems, and possible solutions to those problems.
• Define diversity, and explain the importance of recognizing and respecting diversity in the workplace
• Identify characteristics of each of Keirsey's four Temperaments
• Suggest methods for interacting with individuals based on their Temperament.
• List the three domains of learning, including verbs commonly used to describe each level within each domain
• Construct a set of learning objectives.
• Differentiate a policy from a procedure.
• Prepare a technical procedure according to NCCLS guidelines
• List various components of a well-constructed resume
• Discuss preparation for a successful interview
• Submit a cover letter and resume for a fictitious job
• When given a list of interview questions, choose whether or not the questions are appropriate according to the EEOC
• Define terms relating to compliance issues.
• When given a workplace scenario, choose whether the situation does or does not constitute a violation of a code of conduct.
• List several considerations when selecting a laboratory information system or new lab instrument.
• Outline a logical process in the selection of a LIS.
• Discuss basic considerations of human resource management regarding performance evaluations, workflow analysis and job descriptions.

CLAB 413 - LABORATORY MEDICINE SEMINAR
Research and presentation of various laboratory medicine topics. This course requires individual investigations. This is a self-directed learning course.

General Block Objectives:
The student will be able to:

• Select and thoroughly research a topic or topics related to the clinical laboratory, using library or internet sources.
• Organize the material and submit as a written paper.
• Present the material from one article/assignment to other students and/or staff.
• Use time management skills to complete the assignment by the due date set by the education coordinator.
• Select and successfully complete one or more senior projects.
CLAB 412 - CHEMISTRY/URINALYSIS/PHLEBOTOMY CLINICAL EDUCATION
Supervised clinical advanced training and studies in the areas of chemistry/urinalysis/phlebotomy. Emphasis on manual and automated techniques and development of professional behavior. Includes diagnostic correlations, quality assurance, and management practices.

General Block Objectives:
• The objectives of the chemistry/urinalysis/phlebotomy internship course are to provide learning experiences that will result in the student possessing certain minimum job entry level competencies in the area of clinical chemistry.

CLAB 411 - HEMATOLOGY/COAGULATION CLINICAL EDUCATION
Supervised clinical internship in the area of hematology/coagulation laboratory. Emphasis on manual and automated techniques and development of professional behavior. Includes diagnostic correlations, quality assurance, and management practices.

General Block Objectives:
• The objectives of the hematology/coagulation internship course are to provide learning experiences that will result in the student possessing certain minimum job entry level competencies in the area of hematology/coagulation.

CLAB 324 CLINICAL CHEMISTRY
This course includes detection and quantitation of metabolic compounds of major clinical significance in the diagnosis and treatment of disease. Emphasis on principles of analysis and diagnostic significance of biological constituents.

Objectives:
• The course presents the basic concepts of the more significant metabolic processes.
• Study of analytical instrumentation, methodologies, and chemical principles of laboratory tests.
• Gaining experience in solving problems, interpretation of test results, and evaluation of procedures.
• Learning the value of clinical chemistry as a tool in diagnosis and treatment, remembering that patient care is the primary concern.

CLAB 323 IMMUNOHEMATOLOGY LAB
This course covers the safety procedures followed in blood transfusion and blood products as well as the basic principles of blood compatibility matching assays.

Objectives:
• Provide the students with the essential skills needed in immunohematology basic assays.
• Teach them the blood product separation techniques.
• Perform the basic techniques used to select the blood donors before blood transfusion.
• Keep updated with the last technologies used in blood transfusion service center.

CLAB 322 IMMUNOHEMATOLOGY
This course covers the basics of immunohematology, blood components interactions such as blood groups and their matching assays and blood transfusions assays.

Block Objectives:
• Provide the students with the essential skills in immunohematology and blood transfusions.
• Teach them the methods and techniques of problem solving associated with blood transfusion services.
• Improve student’s skills in understanding blood transfusion techniques as well as preparation of blood products.

CLAB 321 MOLECULAR DIAGNOSTICS LABORATORY
In this course, students will acquire knowledge about basic principles involved in different techniques and procedures used in molecular biology and genetics laboratories. They will also get familiar about optimum use of available laboratory techniques for diagnosis of different diseases using molecular biology and genetic assays. Students will acquire the skills to analyze, interpret and report results of experimental work performed during laboratory sessions.

• To train the students how to isolate genomic DNA from blood samples.
• To train the students how to amplify genes using polymerase chain reaction
• To teach them how to analyze DNA samples using agarose gel electrophoresis.
• Using different molecular techniques to study genes involved in diseases.
• Teach them how to interpret laboratory results and write reports.

CLAB 320 MOLECULAR DIAGNOSTICS
Introductory course in molecular diagnostics. Focus on principles and applications of molecular technologies currently used in laboratory medicine, as well as quality control and quality assurance issues associated with molecular testing

Objectives:
• Introduce human genetic diseases and the new molecular diagnostic techniques to diagnose and analyze these diseases.
• Introduce latest methods used in Molecular diagnostics.

CLAB 319 - CLINICAL MICROBIOLOGY LABORATORY
Pathogenic microorganisms are covered. Emphasis is on isolation, cultivation, and identification. Fundamental microbiology, epidemiology, and pathogenesis are also included as appropriate.

General Block Objectives:
• To prepare the student for effective performance and further learning and understanding during internship in the Microbiology laboratory.
• To understand basic concepts in microbiology, methodologies, interpreting results, making knowledgeable observations, and evaluating new procedures.
• Students must appreciate the value of the laboratory in assisting with the diagnosis of infectious diseases, remembering that patient care is a primary concern.

CLAB 318 - CLINICAL MICROBIOLOGY
Pathogenic microorganisms are covered. Emphasis is on isolation, cultivation, and identification. Fundamental microbiology, epidemiology, and pathogenesis are also included as appropriate.

General Block Objectives:
• To prepare the student for effective performance and further learning and understanding during internship in the Microbiology laboratory.
• To understand basic concepts in microbiology, methodologies, interpreting results, making knowledgeable observations, and evaluating new procedures.
• Students must appreciate the value of the laboratory in assisting with the diagnosis of infectious diseases, remembering that patient care is a primary concern.

CLAB 317 - CLINICAL BIOCHEMISTRY
Introduction to clinical biochemistry. Emphasis on material relevant for the clinical laboratory sciences. Topics include metabolism, carbohydrates, lipids, amino acids, proteins, and nucleic acids.

Block General Objectives:
• To prepare the student for further learning and understanding in clinical laboratory science core and internship courses.

CLAB 316 - PARASITOLOGY
Pathogenic parasites are covered. Emphasis is on the identification of parasites.

Block Objectives:
• To prepare the student for effective performance and further learning and understanding during internship in the Microbiology laboratory.
• To understand basic concepts in Parasitology.

CLAB 315 - HEMATOLOGY LABORATORY
Laboratory for Hematology 4212. Emphasis on quantitative and qualitative techniques to evaluate the number, function and morphology of blood cells in bone marrow and peripheral blood. Includes testing methods to diagnose and monitor treatment for hematologic and hemostatic disorders.
Block General Objectives:

- To present information on blood cells; their formation, function, and morphology, and how they are affected in disease.
- To provide a background in hemostasis that will enable the student to understand the logic of coagulation testing and the correlation of coagulation deficiency states.
- To develop basic skills, appropriate to the evaluation of blood cells and the coagulation mechanism. This will provide the foundation for clinical internship during which technical skills will be perfected and more instrument procedures added. Understanding the technical and/or biological reasons for abnormal test values will be emphasized.

CLAB 314 - HEMATOLOGY
Normal and abnormal hematopoiesis and hemostasis. Emphasis on recognizing alterations correlating with diagnosis and treatment. Includes quantitation techniques and morphologic evaluation and function of blood cells in bone marrow and peripheral blood.

Block General Objectives:

- To present information on blood cells; their formation, function, and morphology, and how they are affected in disease.
- To provide a background in hemostasis that will enable the student to understand the logic of coagulation testing and the correlation of coagulation deficiency states.

CLAB 313 - IMMUNOLOGY
Introduction to the mechanism of normal and abnormal immune response. Emphasis on laboratory diagnosis by agglutination, precipitation, immunofluorescence and enzyme immunoassay.

Block General Objectives:

- Discuss the basic concepts of immunology.
- Correlate the interdependency of the immune response with other laboratory disciplines.

CLAB 312 - BODY FLUIDS
Lectures cover theory and techniques of analyzing urine, cerebrospinal, synovial, serous, amniotic, and other body fluids. Emphasis is on correlation of chemical, cellular, and microbiologic findings in normal and disease states.

Block Objectives:

- Discuss the formation, composition and function of body fluids.
- Recognize physical, chemical and microscopic results as “normal” or “abnormal” for each body fluid presented.
- Correlate abnormal lab results with specific disease states or conditions.
• Recognize conditions or substances that cause interference, false positive and false negative results in the analysis of each body fluid.
• Discuss specimen collection requirements for each body fluid.
• Discuss quality assurance and quality control as it pertains to the body fluids lab.

CLAB 311 - LABORATORY PROCEDURES
Laboratory sessions are designed to introduce basic laboratory techniques including but not limited to safety, phlebotomy, pipetting, the use of basic instruments as well as techniques for the analysis of urine, cerebrospinal, and other body fluids.

Block Objectives:
• Follow laboratory safety procedures.
• Perform routine phlebotomy.
• Make dilutions using pipettes.
• Using spectrophotometer data, construct a standard curve.
• Develop basic skills appropriate to the analysis of body fluids.
• Recognize physical, chemical and microscopic findings consistent with both normal and abnormal urine and other body fluids.
• Correlate lecture material presented in MET 4223 Body Fluids, MET 4311 Immunology and MET 3213 Introduction to Medical Technology with laboratory exercises.
• Select proper reagents and supplies, perform procedures within listed criteria limits, interpret results and evaluate the significance of the results for the tests listed in the charts below.
• Achieve a cumulative competency level of 60% or greater for this course.