INTRODUCTION TO CLINICAL LAB SCIENCE
BIOL3003 201 & 21A

Lecture & Lab Syllabus Spring 2023

TR 8:00 AM -8:50 AM & 9:00 AM – 10:50 AM
BOLIN 329

Instructor: Asma Javed, Bolin Science Hall, Rm 220B, Ph;
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Lecture Text:
Linne & Ringsrud's Clinical Laboratory Science: Concepts, Procedures, and Clinical Applications 8th Edition
by Mary Louise Turgeon EdD MLS(ASCP)CM (Author)
ISBN-13: 978-0323530828
ISBN-10: 0323530826

Lab Manual; Lab instructions and handouts will be provided as needed.

Course Information; This is a very fast paced course that assumes the student being proficient and knowledgeable in courses such as Anatomy & Physiology, Microbiology, General Chemistry, Organic Chemistry, Analytical Chemistry, Math, Statistics and other Biology courses.

This Course defines basic clinical laboratory sciences terminology and application. Introduces the student to the specialties within the clinical laboratory sciences profession including microbiology, hematology, chemistry, immunohematology, and immunology and their roles in patient care. Reviews professional organizations and licensures. Examines employment opportunities. Visitation of clinical laboratories included.

Lecture and laboratory exercises in general clinical laboratory practice will be taught during this course. Topics include general laboratory practices, phlebotomy, general hematology, microbiology, coagulation, urinalysis, blood banking, and clinical chemistry.

Phlebotomy

Introduces the student to the theory, principles and procedures of blood collection through lectures and videos.

Clinical Chemistry & Urinalysis

Examines the physiological, biochemical and mathematical relationships involved in the establishment and utilization of laboratory procedures in the clinical laboratory. Exercises cover laboratory mathematics, principles of routine clinical chemistry methods of analysis and the clinical significance of routine clinical chemistry analytes.
Includes the fundamental principles of urine and body fluid analysis with correlation of laboratory methods and practice.

Clinical Hematology and Coagulation

A comprehensive study of the human hematopoietic system and its relationship to other organ systems. Includes morphological and biochemical relationships of erythropoiesis and leukopoiesis in healthy vs. disease states, as well as the performance and application of current methods in hematologic analysis, and technology.
A comprehensive study of the function and disorders of hemostasis, thrombosis and anticoagulant therapy. Laboratory diagnosis and laboratory applications are presented.

Clinical Microbiology

A short introduction to Parasitology, Virology, Mycobacteriology and Mycology along with Bacteriology. Lectures on the morphologic and biochemical differentiation of commonly isolated microorganisms in the clinical laboratory as well as the biochemical basis of all media, reagents, tests and antimicrobials used in clinical microbiology. Simulated clinical laboratory includes practical experience in the isolation, identification and antimicrobial susceptibility testing of microorganisms commonly encountered. Also includes morphologic, biochemical and serologic clinical laboratory techniques using microorganisms involved in human disease.

Immunology & Immunohematology

Examines basic immunology, the human blood groups and blood group genetics, hemolytic disease of the newborn, transfusion therapy and current blood bank practice. Includes the performance of simulated clinical laboratory techniques that are routinely performed in an immunohematology laboratory and the interpretation of results.

General Rules.

1. You must attend both lecture and lab to pass the course.
2. You must be punctual. Roll call will be taken every day by means as deemed appropriate by the instructor. If you miss a lecture, please make sure to get notes/information from another student or D2L, if applicable. Unless it is an authorized absence, the instructor will not provide notes or help.
3. A student with excessive or successive, unexcused absence in either lecture or laboratory may be dropped from the course with a "F" (2021-2022 student catalog). I do expect to be given prior notification of an impending absence for it to be considered **authorized or excused** (You can always leave a message on my phone). **Documentation is required.** Email or phone message will not be considered valid documentation but should be used to forewarn the instructor.
4. **All exams must be attempted.**
5. **Exam Format: Exams** will have MC, TF, Case Studies and short essays. **Makeup exams** will have to be scheduled ahead of time and will be given in case of an authorized absence only (2021-2022 Student catalogs). The content & the type of makeup exam will be at the instructor's discretion.
6. There will be assignments and case studies.
7. Unexcused absences from the exams, quizzes and assignments will be recorded as zero.
8. You must follow the lecture outline and read the material ahead of time.
9. You must follow the university standards of conduct (Student handbook)
10. 1f you have questions and want to discuss course materials or problems, please see me during my office hours.
11. **In accordance with the law, MSU provides students with documented disabilities academic accommodations. If you are a student with a disability, please contact me and the disability support services @ 397-4140**

Strategies for Success;

1. Come to class
2. Be prepared. Read information ahead of time. This will make the scientific vocabulary less alien.
3. Participate in class and ask questions
4. Form study groups
5. Answer questions at the end of each chapter. We will be using these during our discussions.
6. Add to your notes from the book as the lecture will give you an outline sketch of the material.
7. Hand in assignments on time
8. Get help early
9. Visit the online help materials offered by the book

Lab Information:

Quizzes= at the start of lab on previous lab material
Midterm/Final= Theory/Practicum style
Lab reports= as required by the lab exercise.
Lab Project = will be assigned

Grading:

Lecture = 70%

Exams = 50%

Exam 1-4= 36%

Final Exam = 12%

Assignments/Case Studies/Quizzes = 10%

*Presentation = 10%

Lab=30%

Quizzes= 4%

Midterm= 7%

Final= 7%

Lab Reports= 4%

*Final Lab Project = 8%

*Dates and topics will be assigned during the semester

INTRO TO CLS LECTURE SYLLABUS

TOPIC	CHAPTER/EXAM
Fundamentals of Clinical Laboratory	1
Safety in the Clinical Laboratory	2
Collecting and processing blood and body fluids	3
Laboratory mathematics and solution preparation	7
QA and QC in the Clinical Laboratory	8
EXAM 1 FEB 7	
Renal physiology and Urinalysis	14
EXAM 2 FEB 16	
Introduction to Hemostasis	13
EXAM 3 MAR 2	
Introduction to Clinical Chemistry	11
EXAM 4 MAR 23	
Principles and practice of Clinical Hematology	12
EXAM 5 APR 11	
Immunology	17
Immunohematology & Transfusion Medicine	18
Introduction to Microbiology	15
FINAL EXAM MAY 11 8am- 10 am	
FINAL PROJECT PRESENTATIONS APR 27	

INTRO TO CLS LABORATORY SYLLABUS

LAB 1 GENERAL LABS MAR 31 & FEB 2

LAB 2 URINALYSIS LAB FEB 14

LAB 3 HEMOSTASIS LAB FEB 28

LAB 4 CHEMISTRY LAB MAR 9

VIRTUAL MIDTERM

LAB 4 HEMATOLOGY LABS APR 6

LAB 5 IMMUNOLOGY/IMMUNOHEMATOLOGY LABS APR 20

LAB 6 MICROBIOLOGY LABS MAY 2 & MAY 4

VITRUAL FINAL