



**Berkshire Medical Center
School of Medical Laboratory Science**

Course Syllabus

Course No. : MEDT 404

Course Title: Clinical Immunology/Serology

Credits: 1 (through affiliated colleges/universities affiliation agreements)

Description:

Introduces the student to the immune system and the immune response. Discusses immune detection, immunodeficiency disorders, autoimmune diseases, hypersensitivity, and tumor and transplant immunology. Also discusses the serologic principles and diagnosis of infectious diseases. Discusses the antigen-antibody complex and the relationship to current testing methodology. Describes the controllable and non-controllable pre-analytical, analytical, and post-analytical variables that can affect testing. The student applies this theory in the clinical lab using current immunologic techniques and instrumentation to correlate lab results to disease processes.

Primary Didactic Instructor: Kari Murad, Ph.D
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Additional Instructors: Lori Moore, M.Ed., MLS(ASCP)
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Require Text: none

Reference text: Immunology & Serology in Laboratory Medicine, 7th ed, Mary Louise Turgeon, 2021

Clinical Immunology and Serology: A laboratory perspective, 5th edition, L Miller, C. Stevens, 2021

Lecture: 10 Immunology lectures; 3 Serology lectures – August through November

Laboratory: Part of the 7 week combined clinical rotation within Chemistry, Immunology (special chemistry) and Toxicology Departments.

**See individual student schedule for dates



Course Goals and Objectives

Based on the didactic material and clinical instruction students will score an average of 75% or better on evaluation tools (i.e. exams, evaluations, task lists, etc) to demonstrate competency of the following objectives.

Upon completion of the Immunology/Serology clinical and didactic course the student will:

1. Develop an entry-level knowledge of immunology/serology tests used in the clinical laboratory.
2. Describe the basic components of the human immune system and the body's immune response mechanisms to various disorders or disease states.
3. Describe the structure, function, and types of antibodies involved in the immune response.
4. Discuss the causes and consequences of immune system dysfunction.
5. Compare and contrast the 4 types of hypersensitivity reactions.
6. Discuss the role of complement in the immune response.
7. Outline the important components of transplantation immunology and discuss possible elements involved in rejection.
8. Discuss the various infectious diseases encountered in the immunology/serology lab.
9. Explain the principles and methods of each test performed in the immunology/ serology laboratory used to detect disease and explain their clinical significance.
10. Compare and contrast the different methods for testing used in the serology lab.
11. Explain the importance of quality control and apply it to the immunology/ serology laboratory.
12. Determine appropriate specimen collection, processing, and analysis of body fluid specimens by following established procedures and resolve specimen issues.
13. Perform manual and automated testing on patient body fluids that result in valid laboratory results in the immunology/serology department.
14. Perform routine maintenance, quality control, and calibrations on instrumentation in the immunology/serology department following established procedures.
15. Evaluate quality control data and determine course of action when quality control falls outside of range.
16. Interpret laboratory data generated from the immunology/serology laboratory regarding test accuracy and abnormal values.
17. Evaluate laboratory data and give possible diagnosis for patient results.
18. Organize workflow for efficiency in lab testing turn-around-times.
19. Practice established confidentiality guidelines.
20. Demonstrate professional and ethical conduct with all healthcare professionals, consumers, patients, and other laboratory students.

Basis for Student Evaluation

Lecture evaluation will consist of written exams. The laboratory evaluation will consist of written exams, task lists, clinical performance and affective evaluation. The final grade will be composed of 60% lecture and 40% laboratory.

Immunology/Serology Lecture Schedule

August/September

- 1 Immune System Introduction
- 2 Innate Immunity and Inflammation
***Take home quiz**
- 3 Innate Immunity and beginning Adaptive Immunity
- 4 Adaptive Immunity: Cell Communications and Cytokines
- 5 Cellular Immunity – Immunoglobulins
***Take home quiz**
- Midterm**
- * Immunoglobulins & Review
- 6 Hypersensitivity Reactions
- 7 Immunodeficiencies
***Take home quiz**
- 8 Autoimmunity
- 9 Transplantation & HLA
***Take home quiz**
- 10 Tumor Immunology
Immunology Final

Serology

October/November

- 1 Serology #1 (L. Moore) – serologic testing methods
 - 2 Serology #2 (L. Moore) – serologic tests part 1
 - 3 Serology #3 (L. Moore) – serologic tests part 2
- Serology Final**
Combined Immunology/Serology Final – last week of May

Affective behaviors

Didactic

Following appropriate training, during didactic instruction the student will:

1. Exhibit professional behavior during didactic instruction.
2. Attend lectures in a timely manner.
3. Respect other students and members of the laboratory.
4. Contribute to a positive learning environment.
5. Demonstrate an interest in the subject matter.
6. Comply with hospital and laboratory dress code and personal appearance policies.
7. Comply with institutional policies concerning safety and confidentiality.
8. Cooperate when situations arise and there is a necessary change in lecture schedule.
9. Participate in creating an inclusive learning environment.

Clinical

Following appropriate training, during clinical instruction the student will:

1. Comply with all hospital, laboratory, and school policies.
2. Demonstrate phone etiquette using BHS customer service standards.
3. Maintain a neat, clean, and orderly work area in the Serology department.
4. Value the advice and opinion of others.
5. Accept responsibility for their own actions notifying the instructor or supervisor of any errors.
6. Be dependable and punctual for the clinical experience.
7. Organize their time to complete assignments and daily training.
8. Accept constructive feedback and use it as a tool for improved performance.
9. Establish a good rapport with departmental staff and uphold the concept of teamwork.
10. Cooperate when situations arise and there is a necessary change in lecture schedule.
11. Comply with hospital and laboratory dress code and personal appearance policies.
12. Contribute to a positive, inclusive clinical training environment.

Attendance

Students follow the School of MLS attendance policy. Students are allotted 80 hours for personal time and sick time during the course of the internship. The Program Director and clinical department must be notified of any sudden absence as soon as possible. The main lab number may be called 24 hours a day to notify the lab of an absence. The Program Director should be emailed to document the absence.

Any coursework or clinical training missed over the 80 hours allowed, will require consultation with the Program Director as to the course of action to make up lost training time.

Snow days

Cancellation of classes or clinical training due to inclement weather will be at the discretion of the Program Director.