

# Virginia Western Community College

## MDL 215

### Immunology

#### COURSE OUTLINE

**Prerequisites:**

N/A

**Course Description:**

Presents the physiological basis of humoral and cell mediated immunity, including the medical and clinical laboratory application of immunological principles.

**Semester Credits: 2    Lecture Hours: 2    Lab/Recitation Hours: 0**

**Required Materials:**

Textbook:

Clinical Immunology & Serology A Laboratory Perspective, 5<sup>th</sup> Edition, by: Linda E Miller, Publisher: F. A. Davis, 2021, Print ISBN: 9780803694408, 0803694407, eText ISBN: 9781719645966, 1719645965

**Note:** Previous edition is fine.

**Course Outcomes:****At the completion of this course, the student should be able to:**

- Correctly define, spell, pronounce and have an understanding of the terminology used in Immunology and Serology, to include: the lymphoid system, immunological reactions, autoimmunity, hypersensitivity, and basic theories of vaccination, transplantation, tolerance, and infectious disease.
- Apply knowledge from beginning chapters to understand the principles and methodologies of different assays which are currently and routinely used in modern clinical immunology laboratories.
- Understand principles and use mathematical calculations and formulas for various assays.
- Define, describe and discuss the serology of noninfectious clinical disorders to include: allergy and hypersensitivity, autoimmunity, tumors, hematologic malignancies, transplantation immunology, and primary immunodeficiency disease.
- Define, describe and discuss the serology of infectious clinical disorders to include: acquired immunodeficiencies, viral diseases, bacterial diseases, and fungal and parasitic diseases.
- Understand and discuss the role of the clinical immunology laboratory in the diagnosis of disease.

## Topics Outline

### PART 1

1. Safety and Quality Management (Chapter 8).
2. Introduction to Immunology and the Immune System Introduction to Immunology (Chapter 1).
3. Nature of Antigens and the Major Histocompatibility Complex (Chapter 2).
4. Innate Immunity (Chapter 3).
5. Adaptive Immunity (Chapter 4).

### PART 2

6. Antibody Structure and Function (Chapter 5).
7. Cytokines (Chapter 6).
8. Complement System (Chapter 7).

### PART 3

9. Principles of Serologic Testing (Chapter 9).
10. Precipitation and Agglutination Reactions (Chapter 10).
11. Labeled Immunoassays (Chapter 11).
12. Molecular Diagnostic Techniques (Chapter 12).
13. Flow Cytometry and Laboratory Automation (Chapter 13).

### PART 4

14. Hypersensitivity (Chapter 14).
15. Autoimmune (Chapter 15).
16. Transplantation Immunity (Chapter 16).
17. Tumor Immunology (Chapter 17).
18. Immunoproliferative Diseases - Overview of Laboratory Testing (Chapter 18).
19. Immunodeficiency Diseases (Chapter 19).

### PART 5 Overview of the following:

20. Immunization and Vaccines (Chapter 25).
21. Laboratory Diagnosis of HIV Infection (Chapter 24).
22. Serology and Molecular Detection of Bacterial Infections (Chapter 20).
23. Serology and Molecular Diagnosis of Parasitic and Fungal Infections (Chapter 22).
24. Serology and Molecular Diagnosis of Viral Infections (Chapter 23).