MASTER SYLLABUS
PSM 102 Anatomy and Physiology

COURSE NO. AND TITLE: PSM 102 Anatomy and Physiology

I. FSM MISSION STATEMENT

The mission of the Public Safety Management Program (PSM) is to provide you, the Public Safety professional with highly trained and qualified instructors within the various fields of study in the PSM program. We are committed to the enhancement and advancement of Public Safety professionals through higher education.

II. COURSE DESCRIPTION:
Integrates a complex depth and comprehensive breadth of the knowledge of the anatomy and physiology of all human systems. Integrates comprehensive knowledge of pathophysiology of major human systems. Integrates comprehensive knowledge of life span development.

III. PREREQUISITE

All students must, in addition to SIU requirements, possess a valid CPR card for Healthcare Providers and Illinois EMT-B License through the entire time enrolled. If student possesses a valid NREMT license they must obtain an IL Basic License by week one of this class. It will be valid for 4 years or until student completes the Paramedic Exam.
A basic A& P class and Medical Terminology class is strongly recommended prior to beginning the Paramedic Classes.

IV. REQUIRED TEXTBOOK:

_Nancy Caroline’s Emergency Care in the Streets Premier Package
ISBN-13 9781284038316

• BIBLIOGRAPHY:

Once the online account is created the above book will be used throughout the series. Supplemental books will be introduced as recommended or required throughout the series of courses. The above is the only requirement for PSM 101.
V. COURSE OBJECTIVES:

Each student will:

1. State the steps that contribute to wellness and their importance in managing stress.
2. Understand the physiologic, physical, and psychological responses to stress.
3. Describe reactions to expect from critically ill and injured patients and how you can effectively work with patients exhibiting a range of behaviors.
4. Discuss techniques for working at particularly stressful situations, such as multiple-casualty scenes or the death of a child.
5. Describe posttraumatic stress disorder (PTSD) and steps that can be taken, including critical incident stress management, to decrease the likelihood that PTSD will develop.
6. Describe issues concerning care of the dying patient, death, and the grieving process of family members.
7. Define “infectious disease” and “communicable disease.”
8. List various routes of disease transmission.
9. Understand the standard precautions that are used to prevent infection when treating patients.
10. Describe the steps to take for personal protection from airborne and blood borne pathogens.
11. Explain post exposure management when exposed to patient blood or body fluids, including completing a post exposure report.
12. Discuss the importance of ambulance cleaning and disinfection.
13. Describe the steps necessary to determine scene safety and to prevent work-related injuries at the scene.
14. List the various types of protective clothing you may need to wear to protect yourself from a variety of hazards.
15. Discuss the different types of protective clothing worn to prevent injury.
16. Recognize the possibility of violent situations and the steps to take to deal with them.
17. Define pathophysiology, and discuss its scope.
18. Explain the function of each of the three main components of a human cell: the cell membrane, the cytoplasm, and the nucleus.
19. Discuss how the body maintains homeostasis.
20. Describe the characteristics of the four basic tissue types—epithelial, connective, muscle, and nerve tissue—and specify where each is found in the body.
21. Explain the function of common ligands, including medications, hormones, neurotransmitters, and electrolytes.
22. Compare atrophy, hypertrophy, hyperplasia, dysplasia, and metaplasia as means of cellular adaptation.
23. Analyze the functions of water in the body.
24. Explain the concepts of osmotic pressure and membrane permeability.
25. Explore the causes, clinical manifestations, assessment, and management of edema.
26. Survey the mechanisms by which fluid and electrolyte balance are maintained in the body.
27. Explain the physiologic consequences of imbalances in sodium, potassium, calcium, phosphate, and magnesium.
28. Become familiar with the concepts of acid, base, and pH.
29. Explain how proteins, phosphate ions, and bicarbonate ($\text{HCO}_3^-$) buffer pH imbalances in the body.
30. Compare the four main clinical presentations of acid-base disorders: respiratory acidosis, respiratory alkalosis, metabolic acidosis, and metabolic alkalosis, and describe the clinical presentation that might be associated with a mixed acid-base disorder.
31. Outline how cellular injury occurs in patients with hypoxia, chemical exposures, infection (sepsis), immunologic exposures (hypersensitivity reactions), inflammatory conditions, genetic disorders, nutritional imbalances, physical damage (mechanical injury), and other harmful exposures, such as extremes of hot and cold.
32. Examine the concept of apoptosis.
33. Analyze the controllable and uncontrollable risk factors that intersect in order to cause disease.
34. Outline how incidence, prevalence, morbidity, and mortality data are used in analyzing disease risk.
35. Become familiar with autosomal dominant and autosomal recessive patterns of inheritance.
37. Describe how the body synthesizes hemoglobin.
38. Identify several common renal, gastrointestinal, and neuromuscular disorders.
39. Define perfusion, and explain the physiologic consequences of hypoperfusion.
40. Analyze the mechanisms by which the body compensates for hypoperfusion. (41. Discuss the causes of central and peripheral shock, including cardiogenic, obstructive, hypovolemic, and distributive shock.
42. Outline the management of a patient in shock.
43. Describe multiple organ dysfunction syndrome.
44. Examine the body’s three lines of defense against pathogens: anatomic barriers, the immune response, and the inflammatory response.
45. List the functions of the five general types of white blood cells: basophils, eosinophils, monocytes, neutrophils, and lymphocytes.
46. Describe the function of macrophages.
47. Describe the function of mast cells.
48. Compare humoral immunity with cell-mediated immunity.
49. Explain how plasma protein systems—the complement system, the coagulation (clotting) system, and the kinin system—modulate the inflammatory response.
50. Compare wound healing by primary intention with wound healing by secondary intention.
51. Explain why hypersensitivity reactions sometimes occur, and outline the four types of hypersensitivity reactions.
52. List several autoimmune reactions, and explain blood group incompatibility.
53. Compare inherited and acquired immunodeficiencies. (54. List the stages of the general adaptation syndrome, and explore the relationship between stress and disease
55. Understand the terms used to designate the following age groups: infants, toddlers, preschoolers, school-age children, adolescents (teenagers), early adults, middle adults, and late adults.
56. Describe the major physiologic and psychosocial characteristics of an infant’s life.
57. Describe the major physiologic and psychosocial characteristics of a toddler and preschooler’s life.
58. Describe the major physiologic and psychosocial characteristics of a school-age child’s life.
59. Describe the major physiologic and psychosocial characteristics of an adolescent’s life.
60. Describe the major physiologic and psychosocial characteristics of an early adult’s life.
61. Describe the major physiologic and psychosocial characteristics of a middle adult’s life.
62. Describe the major physiologic and psychosocial characteristics of a late adult’s life.

Skills Objectives

1. Demonstrate the necessary steps to take to manage a potential exposure situation.