Western Technical College

10531912 Paramedic Medical Principles

Course Outcome Summary

Course Information

Description	This course addresses the complex depth of anatomy, physiology, and pathophysiology of major human systems while also introducing the paramedic students to the topics of shock, immunology, and bleeding.
Career Cluster	Law, Public Safety, Corrections and Security
Instructional Level	Associate Degree Courses
Total Credits	4
Total Hours	72

Pre/Corequisites

Prerequisite 10-531-911 EMS Fundamentals (or concurrent)

Textbooks

Bundle: Paramedic Care: Principles & Practice Volume 1-5 plus Access Card - 2017, Anatomy and Physiology for Health Professions – 4th Edition, EMStesting.com Paramedic Student Access Card – 2nd Edition, Platinum Planner: Paramedic – Access Card – 2016, Basic Arrhythmias – 8th Edition. 5th Edition. Copyright 2017. Bledose, Bryan, Robert Porter and Richard Cherry. Publisher: Pearson. **ISBN-13**: 978-0-13-747207-9. Required.

531-911 Paramedic Student Reference Guide, Skills Check Sheets and Paramedic Clinical Guidebook. Western. Publisher: Western. Required.

Learner Supplies

Program Clothing. **Vendor:** To be discussed in class. Required.

Success Abilities

1. Cultivate Passion: Expand a Growth-Mindset
2. Refine Professionalism: Improve Critical Thinking
3. Refine Professionalism: Participate Collaboratively

Program Outcomes

1. Integrate pathophysiological principles and assessment findings to provide appropriate patient care
2. Demonstrate paramedic skills associated with established standards and procedures for a variety of patient encounters
3. Communicate effectively with others
4. Demonstrate professional behavior
5. Meet state and national competencies listed for paramedic certification(s)

Course Competencies

1. Apply human anatomy and physiology concepts

Assessment Strategies

1.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

1.1. you answer questions related to the learning objectives on a test
1.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

1.a. Define anatomy.
1.b. Define physiology.
1.c. Define pathophysiology.
1.d. Define homeostasis.
1.e. Identify specific body parts and areas.
1.f. Identify the planes and sections of the body.
1.g. Identify abdominal quadrants and regions.
1.h. Distinguish between body organ systems.
1.i. Identify anatomic cavities.

2. Summarize cell structure and function

Assessment Strategies

2.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

2.1. you answer questions related to the learning objectives on a test
2.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

2.a. Discuss cellular composition at the atomic level.
2.b. Discuss cellular composition at the chemical level.
2.c. Discuss theory.
2.d. Describe cellular anatomy and physiology.
2.e. Explain cellular respiration.

2.f. Describe the cellular environment.
2.g. Describe cellular transport mechanisms.
2.h. Discuss the process of cellular division.
2.i. Explain cellular respiration and metabolism.
2.j. Discuss the functions of vitamins, minerals, and other important nutrients.

3. Examine the anatomy and physiology of various body systems.

Assessment Strategies

3.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

3.1. you answer questions related to the learning objectives on a test
3.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

3.a. List types of tissues and membranes.
3.b. Describe the anatomy and physiology of the skeletal system.
3.c. Describe the anatomy and physiology of the muscular system.
3.d. Describe the anatomy and physiology of the respiratory system.
3.e. Describe the anatomy and physiology of the circulatory system.
3.f. Describe the anatomy and physiology of the nervous system.
3.g. Describe the anatomy and physiology of the digestive system.
3.h. Describe the anatomy and physiology of the endocrine system.
3.i. Describe the anatomy and physiology of the renal system.
3.j. Describe the anatomy and physiology of the reproductive system for each gender.
3.k. Describe the anatomy and physiology of the lymphatic and immune system.
3.l. Describe the process by which the body regulates its internal temperature.

4. Summarize pathophysiology and the disease process at the cellular level.

Assessment Strategies

4.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

4.1. you answer questions related to the learning objectives on a test
4.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

4.a. Discuss the correlation of pathophysiology with disease processes.
4.b. Discuss the major classes of cells.
4.c. Describe chief cellular functions.
4.d. Describe cellular components, their structures, and functions.
4.e. Identify different tissue types.
4.f. Discuss types of cellular adaptation.
4.g. Describe the ways in which cellular injury occurs.
4.h. Discuss the manifestation of cellular injury.
4.i. Describe cellular death/necrosis.
4.j. Describe the distribution of body fluids.
4.k. Discuss the impact aging has on the distribution of body fluids.
4.l. Describe the way in which water moves between intracellular fluid and extracellular fluid.
4.m. Describe the way in which water moves between plasma and interstitial fluid.
4.n. Explain alterations in water movement within the body (edema).
4.o. Describe water balance and the role of electrolytes.
4.p. Describe the acid-base balance within the body.

5. Summarize hypoperfusion (shock).

Assessment Strategies

5.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

5.1. you answer questions related to the learning objectives on a test
5.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

5.a. Define shock.
5.b. Discuss anatomy and physiology as related to shock.
5.c. Describe the cellular metabolism impairment that occurs as a result of hypoperfusion.
5.d. Discuss the essential components for normal perfusion.
5.e. Discuss tissue hypoperfusion.
5.f. Discuss the physiologic response to shock.
5.g. Describe the pathogenesis of hypoperfusion.
5.h. Discuss the stages of shock.
5.i. Differentiate between the different types of shock, their pathophysiology, evaluation, and treatment.
5.j. Discuss specific types of shock.
5.k. Discuss complications associated with shock.
5.l. Explain multiple organ dysfunction syndrome (MODS).
5.m. Discuss the assessment of a patient suffering from shock.
5.n. Discuss the management of a patient suffering from shock.
5.o. Identify devices to assist circulation in patients suffering from shock.
5.p. Identify differences between pediatric and geriatric patients suffering from shock.

6. Relate traumatic bleeding to morbidity/mortality

Assessment Strategies

6.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

6.1. you answer questions related to the learning objectives on a test
6.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

6.a. Discuss the mortality and morbidity affecting at-risk populations with traumatic bleeding.
6.b. Discuss the anatomy and function of the respiratory, circulatory, and central nervous systems as they pertain to traumatic bleeding.
6.c. Discuss the pathophysiology of traumatic bleeding.
6.d. Discuss organ involvement in shock due to traumatic bleeding.
6.e. Discuss the classifications of shock as related to traumatic bleeding.
6.f. Discuss compensatory shock as related to traumatic bleeding.
6.g. Discuss decompensated shock as related to traumatic bleeding.
6.h. Discuss the complications of shock as related to traumatic bleeding.
6.i. Discuss assessment considerations for a patient in shock due to traumatic bleeding.
6.j. Discuss shock management strategies and considerations for a patient with traumatic bleeding.
6.k. Discuss the pathophysiology, assessment findings, and management considerations for a patient with traumatic bleeding.

7. Identify factors related to disease.

Assessment Strategies

7.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

7.1. you answer questions related to the learning objectives on a test
7.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

7.a. Identify factors that cause disease.
7.b. Analyze disease risk.

7.c. Describe the combined effects and interaction among risk factors.
7.d. Describe familial disease and associated risk factors.
7.e. Discuss concepts related to stress.
7.f. Discuss stress responses.
7.g. Discuss the interrelationships between stress, coping, and illness.

8. Summarize the ways in which the human body protects itself against disease.

Assessment Strategies

8.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

8.1. you answer questions related to the learning objectives on a test
8.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

8.a. Identify the lines of defense in protecting the body from disease and injury.
8.b. Describe the characteristics of the immune response.
8.c. Discuss, in general/introductory terms, the immune response.
8.d. Describe humoral immune response.
8.e. Describe call-mediated immune response.
8.f. Explain cellular interactions in the immune response.
8.g. Discuss fetal and neonatal immune function.
8.h. Discuss aging and its affects on the immune response in the elderly.
8.i. Describe the acute inflammatory response.
8.j. Discuss mast cells and their role in the inflammatory response.
8.k. Discuss plasma protein systems.
8.l. Discuss the role of cellular components as part of the inflammation response.
8.m. Discuss the role of cellular products as part of the inflammation response.
8.n. Describe systemic responses to acute inflammation.
8.o. Discuss chronic inflammation responses.
8.p. Describe local inflammation responses.
8.q. Discuss phases of resolution and repair.
8.r. Discuss the effect of age-related self-defense mechanisms on the inflammatory process.

9. Correlate morbidity/mortality and preventative strategies to the pathophysiology of immunology conditions.

Assessment Strategies

9.1. Oral, Written or Graphic Assessment

Criteria

Your performance will be successful when:

9.1. you answer questions related to the learning objectives on a test
9.2. you achieve the threshold identified by your Training Center on the assessment

Learning Objectives

9.a. Discuss immunity and inflammation deficiencies.
9.b. Discuss the pathophysiology of immunology emergencies.
9.c. Discuss hypersensitivity (allergy, autoimmunity, and isoimmunity).
9.d. Discuss the assessment of a patient suffering from an allergic reaction.
9.e. Describe the anaphylactoid reaction process.
9.f. Discuss the management of a patient suffering from an allergic reaction.
9.g. Discuss collagen vascular disease.
9.h. Discuss transplant-related problems.
9.i. Identify differences in immunology emergencies affecting pediatric and geriatric patients.
9.j. Discuss communication and documentation considerations for patients with immunology emergencies.
9.k. Discuss transport considerations for patients with immunology emergencies.
9.l. Discuss patient education and prevention of complications or future immunology emergencies.