

HSCI 0053 - PARAMEDIC - ADVANCED LIFE SUPPORT PART 1

Catalog Description

Prerequisite: Completion of HSCI 2 with grade of "C" or better; admission into the California State University Sacramento, Paramedic Program; current California State Emergency Medical Technician (EMT) Certification; current American Heart Association Healthcare Provider CPR certification

Advisory: Completion of HSCI 50, BIOL 55 and HSCI 03 with grade of "C" or better

Hours: 200 (90 lecture, 110 laboratory)

Description: Part one of a four-part series of courses providing the foundational knowledge required for the paramedic level of care in the Emergency Medical System (EMS). Theory and psychomotor application of prehospital care including the anatomy and physiology of respiratory and cardiovascular disease processes, medical disorders and emergencies across the adult life span. Students will learn to identify abnormal physical assessments and apply appropriate priority interventions. Competencies in accessing and evaluating patient monitoring technologies, integrating advanced life support theories to perform paramedic skills related to prehospital care standards for medical emergencies and disorders. Students will receive certified training in Advanced Cardiac Life Support (ACLS). (CSU)

Course Student Learning Outcomes

- CSLO #1: Explain the anatomy and physiology of major disease processes related to the Respiratory and Cardiovascular systems.
- CSLO #2: Identify abnormal physical assessment findings and appropriate priority interventions for the Respiratory and Cardiovascular system disease processes.
- CSLO #3: Integrate Advanced Life Support theories to preform EMT-P skills related to pre-hospital care standards for medical disorders/emergencies across the adult life span.
- CSLO #4: Exhibit competency in accessing, using, and evaluating patient monitoring care technologies.
- CSLO #5: Develop and implement leadership skills to promote scene and crew safety.
- CSLO #6: Explain concepts related to patient safety and quality healthcare.
- CSLO #7: Demonstrate the proper technique and sequence for establishing intravenous (IV) and intraosseous (IO) catheterization for administering fluid therapy in the unstable medical patient.
- CSLO #8: Perform primary and secondary patient assessment in environmentally-induced or exacerbated emergency; interpret assessment findings to formulate a field impression and treatment plan for the patient.

Effective Term

Fall 2023

Course Type

Credit - Degree-applicable

Contact Hours

200

Outside of Class Hours

180

Total Student Learning Hours

380

Course Objectives

Paramedic Unit 1 Preparatory:

1. Identify the paramedic roles and responsibilities within an EMS system, and how these roles and responsibilities differ from other levels of providers.
2. Identify the value the importance of personal wellness in EMS and serve as a healthy role model for peers.
3. Demonstrate ability to integrate the implementation of primary injury prevention activities as an effective way to reduce death, disabilities and health care costs
4. Explain the legal issues that impact decisions made in the out-of-hospital environment.
5. Explain the role that ethics plays in decision making in the out-of-hospital environment.
6. Ability to apply the general concepts of pathophysiology for the assessment and management of emergency patients.
7. Ability to understand and apply the knowledge of pathophysiology to patient assessment and treatment. (A-2)
8. Demonstrate ability to integrate pathophysiological principles of pharmacology and the assessment findings to formulate a field impression and implement a pharmacologic management plan
9. Demonstrate ability to safely and precisely access the venous circulation and administer medications.
10. Ability to integrate the principles of therapeutic communication to effectively communicate with any patient while providing care.

Paramedic Unit 2 Airway Management:

11. Demonstrate ability to establish and/ or maintain a patent airway, oxygenate, and ventilate a patient.

Paramedic Unit 3 Patient Assessment:

12. Demonstrate ability to use appropriate techniques to obtain a medical history from a patient.
13. Explain the pathophysiological significance of physical exam findings.
14. Demonstrate able to integrate the principles of history taking and techniques of physical exam to perform a patient assessment.
15. Demonstrate ability to apply a process of clinical decision making to use the assessment findings to help form a field impression.
16. Demonstrate an accepted format for dissemination of patient information in verbal form, either in person or over the radio.
17. Ability to effectively document essential elements of patient assessment, care and transport.

Paramedic Unit 4 Medical Emergencies:

18. Demonstrate ability to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with respiratory difficulty and pulmonary disease.

19. Demonstrate ability to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with cardiovascular disease.
20. Demonstrate able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a neurological problem.
21. Ability to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an endocrine problem.
22. Demonstrate ability to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with an allergic or anaphylactic reaction.
23. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with a gastroenterological problem.
24. Integrate pathophysiological principles and the assessment findings to formulate a field impression and implement a treatment plan for the patient with a renal or urologic problem.
25. Integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for the patient with a toxic exposure.
26. Demonstrate ability to integrate the pathophysiological principles of the hematopoietic system to formulate a field impression and implement a treatment plan.
27. Ability to integrate pathophysiological principles and assessment findings to formulate a field impression and implement the treatment plan for the patient with an environmentally induced or exacerbated medical or traumatic condition.
28. Ability to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a management plan for the patient with infectious and communicable diseases.
29. Describe and demonstrate safe, empathetic competence in caring for patients with behavioral emergencies.
30. Ability to utilize gynecological principles and assessment findings to formulate a field impression and implement the management plan for the patient experiencing a gynecological emergency.
31. Demonstrate an understanding of the anatomy and physiology of the female reproductive system to the assessment and management of a patient experiencing normal or abnormal labor.

Lab Objectives:

1. Demonstrate method of lifting and moving patients in emergency and non-emergency situations.
2. Demonstrate the use of protective equipment appropriate to the environment and scene
3. Use universal precautions and body substance isolation (BSI) procedures during medication administration.
4. Safely and precisely access the venous circulation and administer medications.
5. Ability to establish and/ or maintain a patent airway, oxygenate, and ventilate a patient.
6. Demonstrate ability to integrate principles of history taking and techniques of physical exam to perform a patient assessment.
7. Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to current American Heart Association Standards and Guidelines
8. Perform a complete neurological examination as part of the comprehensive physical examination of a patient with coma or altered mental status
9. Perform an assessment of the patient with hematologic disorder
10. Effectively and safely manage a patient with an infectious/ communicable disease, including airway and ventilation care, support of circulation, pharmacological intervention, transport considerations,

psychological support/ communication strategies, and other considerations as mandated by local protocol

11. Demonstrate safe techniques for managing and restraining a violent patient
12. Demonstrate how to prepare the obstetric patient and assist in the normal cephalic delivery of the fetus
13. Demonstrate how to prepare the obstetric patient and assist with abnormal deliveries and delivery complications

General Education Information

- Approved College Associate Degree GE Applicability
- CSU GE Applicability (Recommended-requires CSU approval)
- Cal-GETC Applicability (Recommended - Requires External Approval)
- IGETC Applicability (Recommended-requires CSU/UC approval)

Articulation Information

- CSU Transferable

Methods of Evaluation

- Objective Examinations
 - Example: Through weekly quizzes and examinations, Student will demonstrate ability to correctly analyze medical and trauma scenarios and use critical thinking skills to select the appropriate intervention for providing patient care. Medication and pharmacology assessments will be timed computer quizzes on various drugs from the National Registry Standards. Questions will reflect general knowledge of drug action, side effects and ability to implement a pharmacologic management plan.
- Problem Solving Examinations
 - Example: Using human patient simulation, student will be given a practical emergency medical scenario with minimal information on patient history. Using advanced assessment interventions learned in the course, the student will utilize subjective and objective components of the primary assessment to demonstrate ability to select appropriate advanced life support skills for patient care. Instructor will utilize the NREMT (National Registry of Emergency Medical Technicians) standardized Medical Patient Assessment skills sheet for a paramedic, record and grade the scenario performance. The student will be provided copies of their performance for personal improvement and future reference.
- Skill Demonstrations
 - Example: Using human patient simulation, student will demonstrate the ability to perform a primary patient assessment of circulatory, respiratory, and neurological systems to successfully establish an intravenous (IV) line for fluid and medication administration. . Instructor will utilize the NREMT (National Registry of Emergency Medical Technicians) standardized Medical Patient Assessment skills sheet for Paramedic to record and grade the scenario performance. The student will be provided copies of their performance for personal improvement and future reference.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion

Lab:

1. During a practical skills lab Instructor will demonstrate on a human manikin the proper technique for Intraosseous cannulization (IO) to establish a secure route of administration for volume expanding fluids and medications. Instructor will guide each individual student through each step of the IO procedure. The student will safely and precisely demonstrate intraosseous cannulization to establish an access for fluid and medication administration.

Lecture:

1. During lecture presentation the instructor will explain the pathology of a severe allergic reaction, abnormal assessment findings of anaphylactic shock, the proper use and administration of pharmacological interventions and benefit of intravenous fluid administration. The Instructor will demonstrate assessment and intervention skills required for an anaphylactic reaction; Student will demonstrate ability to integrate pathophysiological and assessment findings to formulate a field impression and implement a treatment plan for the patient with a severe allergic or anaphylactic reaction.

Typical Out of Class Assignments Reading Assignments

1. Read the lesson plans on Allergic Reaction Emergencies and explain the physiological changes that occur within the body during anaphylactic shock. Describe the basic and advanced treatment interventions required for this condition including intravenous and pharmacological interventions allowed within the paramedic scope of practice.
2. Read the lesson plans on musculoskeletal trauma and explain the pathology of traumatic orthopedic injuries. Describe the signs and symptoms of perfusion compromise and explain the physiological effects on the body. Explain the benefit of intravenous volume replacement required for patient stabilization under these conditions.

Writing, Problem Solving or Performance

1. Given a detailed medical scenario, student will ask the patient questions based on signs and symptoms, perform a thorough primary assessment of body systems and formulate a general impression. Student will select the appropriate treatment including advanced life support procedures, paramedic interventions, and complete a verbal transfer of care report on the patient condition to the receiving medical facility.
2. Given a detailed respiratory scenario, student will ask patient questions pertinent to medical history and the general impression of acute respiratory distress. Student will assess the body system response to the condition, and develop a treatment plan utilizing appropriate paramedic protocols.
3. The student is required to obtain (3) EKG (electrocardiogram) strips from an available case study. The student is required to analyze the EKG strips from an associated resource for rapid interpretation and research, and anticipate treatment options and advanced care protocols for a patient with cardiovascular disease.

Other (Term projects, research papers, portfolios, etc.)

Required Materials

- AAOS Emergency Care in the Streets
 - Author: Nancy Caroline
 - Publisher: Jones and Bartlett Publishers
 - Publication Date: 2018
 - Text Edition: 8th; Volume 1
 - Classic Textbook?:
 - OER Link:
 - OER:
- AAOS Emergency Care in the Streets
 - Author: Nancy Caroline
 - Publisher: Jones & Bartlett Publishers
 - Publication Date: 2018
 - Text Edition: 8th; Volume 2
 - Classic Textbook?:
 - OER Link:
 - OER:

Other materials and-or supplies required of students that contribute to the cost of the course.