

# HSCI 0050 - INTRODUCTION TO ADVANCED LIFE SUPPORT

## Catalog Description

Prerequisite: Completion of HSCI 2 with grade of "C" or better, or a similar state certified EMT course; must be currently certified as an EMT in the state of California or certified through the National Registry of Emergency Medical Technicians (NREMT)

Advisory: Completion of HSCI 3 and BIOL 55 with grades of "C" or better  
Hours: 80 (60 lecture, 20 laboratory)

Description: Introduction to the advanced knowledge and critical thinking skills necessary to prepare for a paramedic program, advanced emergency medical technician (AEMT) training, registered nursing (RN), physician assistant (PA), and other allied health training programs.

Assessment based course focuses on advanced life support (ALS) interventions; electrocardiogram (EKG) recognition and interpretation; pharmacology; advanced airway management; intravenous and intraosseous fluid and drug infusion; basic anatomy, physiology and principles of pathophysiology; introduction to local, state and national ALS protocols. Practical skills labs focus on improving patient assessment techniques, managing realistic case study scenarios, and introduction to AEMT, paramedic skills, protocols, and interventions.

Course format is interactive and simulates the intense pace and discipline required of AEMT, paramedic and other allied health vocational training. Mandated student participation, passing of written exams and practical skills assessments required for completion. Course is approved for eighty (80) hours of instructor based continuing education (CE) by the National Registry of Emergency Medical Technicians (NREMT) and as a California state EMS CE Provider. (CSU)

## Course Student Learning Outcomes

- CSLO #1: Assess and identify the adult, child, and infant patient in acute respiratory failure and demonstrate the appropriate advanced intervention using endotracheal intubation airway management.
- CSLO #2: Demonstrate the proper technique and sequence for administering intravenous and intraosseous catheterization and fluid therapy in the hypovolemic patient.
- CSLO #3: Explain the requirement for communicating transfer of care and proper written documentation of any patient receiving advanced life support procedures.
- CSLO #4: Identify the different EKG rhythms and underlying cardiac physiology, and explain the advanced intervention of the symptomatic patient.
- CSLO #5: Describe the paramedic training curriculum, certification requirements and how the paramedic level differentiates from the EMT and Advanced EMT scope of practice.

## Effective Term

Fall 2023

## Course Type

Credit - Degree-applicable

## Contact Hours

80

## Outside of Class Hours

120

## Total Student Learning Hours

200

## Course Objectives

Lecture Objectives:

1. Describe how the paramedic scope of practice differentiates from other levels of pre-hospital care as defined in Title 22 of the California Health and Safety Code.
2. Describe the paramedic training curriculum and the certification requirements as defined in Title 22 of the California Health and Safety Code.
3. Identify the basic principles of human anatomy, physiology and pathophysiology and the application to protocols and skills within the paramedic scope of practice.
4. Explain criteria for pre-hospital communication required for the transfer of patient care including verbal face-to-face, med net radio and mobile/cellular communication.
5. Explain the written documentation that conveys the essential elements of patient assessment, scene management, ALS and BLS interventions, and reassessment.
6. Explain the principle patient assessment techniques required for the delivery of advanced life support (ALS) and basic life support (BLS) interventions for the adult, child, and infant patient.
7. Describe advanced airway management and respiratory support through the utilization of advanced airway adjuncts and techniques for the adult, child, and infant patient in acute respiratory failure.
8. Describe proper techniques and protocols for intravenous (IV) and intraosseous (IO) catheterization and fluid therapy utilized in a pre-hospital care environment for the adult, child, and infant patient.
9. Identify all pharmacology approved for the paramedic scope of practice and correctly describe the dosage, classification, action, indication, contraindication, and side effects of each drug.
10. Explain the pathophysiology of cardiovascular and respiratory emergencies, the associated signs and symptoms, and the required paramedic intervention of a symptomatic adult, child, and infant patient.
11. Explain the pathophysiology of shock, medical and traumatic emergencies, the associated signs and symptoms, and the required paramedic interventions of a symptomatic adult, child, and infant patient.
12. Explain the pathophysiology, signs and symptoms of a hemodynamically compromised patient, and the required paramedic intervention for the adult, pediatric and infant patient.

Laboratory Objectives:

Given practical skills applications and simulated scenarios, students will:

1. Demonstrate proper communication techniques and format required for the transfer of patient care including verbal face-to-face, med net radio and mobile/cellular communication.
2. Demonstrate the proper techniques of a primary and secondary assessment on a medical patient and the ability to determine the correct advanced life support intervention on the adult, child, and infant patient.
3. Demonstrate the proper techniques of a primary and secondary assessment on a trauma patient and the ability to determine the correct advanced life support intervention on the adult, child, and infant patient.

4. On a training manikin, demonstrate proper airway and respiratory support through the utilization of advanced airway adjuncts for the adult, child and pediatric patients in acute respiratory failure.
5. Demonstrate the proper techniques for intravenous (IV) catheterization and fluid therapy utilized in a pre-hospital care environment on the adult, child, and infant patient.
6. Demonstrate the proper techniques for intraosseous (IO) catheterization and fluid therapy utilized in a pre-hospital care environment on the adult, child, and infant patient.
7. In a simulated scenario, correctly administer the appropriate medication per protocol, and correctly identify the correct dosage, indication, contraindication, route and side effects of each drug.
8. In a simulated scenario, correctly recognize the associated signs and symptoms of a patient in acute respiratory failure and demonstrate the appropriate advanced airway interventions.
9. Demonstrate ability to rapidly identify and interpret multiple EKG arrhythmias, and explain the underlying physiology of each rhythm as displayed on a cardiac monitor simulator.
10. Demonstrate the ability to properly apply a tourniquet and hemostatic dressings to control a severe hemorrhagic bleed on the adult, child, and infant patient.
11. In a simulated scenario, demonstrate the proper technique to administer medication through a hand held nebulized inhaler, intramuscular and subcutaneous injection, nasal spray, and intravenous and intraosseous infusions.

## 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. Example: While gathering the history of a chest pain patient, you will likely: A. Attach a cardiac monitor B. Administer oxygen C. Start an IV, if appropriate D. All of the above
- Problem Solving Examinations
  - Example: The student will be given a practical emergency medical scenario with minimal information on patient history. Using the electrocardiogram (EKG) and 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 psychomotor skills sheets for Paramedic to record and grade the scenario performance. The student will be provided copies of their performance for personal improvement and future reference.
- Skill Demonstrations
  - Example: Student will demonstrate the ability to perform a primary patient assessment, correctly interpret the EKG rhythm

displayed on the cardiac monitor, and 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
- Distance Learning

Lab:

1. During a practical skills lab, the instructor will demonstrate the proper technique for Intraosseous (IO) cannulization to establish a route of administration for volume expanding fluids and medication administration. The instructor will guide each individual student through every required step of the IO procedure, allowing the students to perform the psychomotor skill on their own to experience the actual hands-on of patient care.

Lecture:

1. During a lecture presentation, the instructor will utilize a 12 lead cardiac monitor and rhythm generator to explain the rapid recognition and interpretation of cardiac arrhythmias, the signs and symptoms experienced by a patient, and the intervention protocols recommended for each cardiac event. The instructor will guide each student through every precise step of applying a twelve (12) lead cardiac monitor, allowing the students to perform the psychomotor skills on their own to experience the actual hands-on of patient care.

Distance Learning

1. Online lecture on pre-hospital communication and transfer of care. Students use of the discussion board will facilitate critical thinking and group discussion on legal considerations. . Students will be required to respond to a minimum of 2 others students initial responses which will allow for interaction between students and the instructor.

## Typical Out of Class Assignments Reading Assignments

1. Complete the assigned reading on basic anatomy and physiology and identify the major systems and pathophysiology of illness and injuries to each system. 2. Complete the assigned reading on pre-hospital care pharmacology, and describe the actions, doses, indications, contraindications, and side effects of all medications approved for use within the paramedic scope of practice.

## Writing, Problem Solving or Performance

1. Given a realistic practical scenario, the student will demonstrate the correct sequence of advanced cardiac life support including, airway management, defibrillation, and drug administration for an adult patient found unconscious and unresponsive with no pulse or respiration. 2.

Given a detailed written scenario, the student will explain the required interventions for an asthma patient in extreme respiratory distress, including use of endotracheal intubation, administration of subcutaneous epinephrine and a nebulized Albuteral treatment.

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

### **Required Materials**

- AAOS Emergency Care in the Streets
  - Author: Nancy Caroline
  - Publisher: Jones and Bartlett Learning
  - Publication Date: 2017
  - Text Edition: 8th
  - Classic Textbook?:
  - OER Link:
  - OER:
- AAOS Emergency Care in the Streets, Student Workbook
  - Author: Nancy Caroline
  - Publisher: Jones and Bartlett Learning
  - Publication Date: 2017
  - Text Edition: 8th
  - Classic Textbook?:
  - OER Link:
  - OER:
- Prehospital Emergency Care
  - Author: Joseph Mistovich
  - Publisher: Pearson Education, Inc.
  - Publication Date: 2017
  - Text Edition: 11th
  - Classic Textbook?:
  - OER Link:
  - OER:

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