

HSCI 0002 - EMERGENCY MEDICAL TECHNICIAN

Catalog Description

Advisory: Completion of HSCI 3, HSCI 7 or BIOL 55 with grade of "C" or better; eligibility for ENGL 11

Hours: 225 (139 lecture, 86 laboratory)

Description: Provides knowledge and critical thinking skills necessary to deliver emergency medical care in a prehospital environment. Covers legal and moral aspects, scene safety, primary and secondary patient assessments, intervention and stabilization skills, proper use of emergency medical equipment, awareness of bloodborne pathogens and communicable diseases, recognition of signs and symptoms, and pathophysiology of medical emergencies and traumatic injuries. Includes practical hands-on skills training and interactive simulations. Includes certification for American Heart Association CPR professional and bloodborne pathogen and infection control. Tactical EMS training and a state certification in "TEMS First Responder Operations". Clinical experience is an assigned field and/or clinical observation. Attendance and participation is mandatory; a cumulative score of 80% on all written quizzes and exams, and passing score on all practical skills testing are required for qualification for national and state EMT certification. Meets updated National Education Standards for EMT curriculum, and all requirements of the California Code of Regulations Title 22, the California EMS Authority and the National Registry of Emergency Medical Technicians (NREMT). Upon successful completion, student is eligible to take the NREMT EMT examination and qualify for a California State EMT certification. Students must be 18 years of age at start of course; provide a Tuberculosis (TB) Blood Test (Quantiferon) or a negative chest x-ray; provide proof of immunizations for Mumps, Measles, Rubella (MMR); Varicella zoster-vaccination or positive titer; Hepatitis B series completion and titer, or Hepatitis B series in progress and a signed declination; Diphtheria, Tetanus and Pertussis (Tdap); current influenza vaccine; Student are required to take a drug screen test demonstrating the absence of evidence of controlled substance use, and provide criminal background screening satisfying the requirements of the State EMS Authority and EMT program clinical providers. (CSU)

Course Student Learning Outcomes

- CSLO #1: Demonstrate the ability to perform a primary and secondary assessment on an adult, child and infant in acute respiratory, cardiovascular, and trauma related emergencies and perform the appropriate interventions and assistive treatment.
- CSLO #2: Describe the management and intervention skills required during emergency childbirth and explain the indications and pathophysiology of childbirth complications.
- CSLO #3: Describe the role and responsibility of the EMT during scene size-up, basic scene management, hazardous material and tactical EMS roles during multi-casualty incidents.
- CSLO #4: Demonstrate competency in all EMT practical skills testing required for certification with the National Registry of Emergency Medical Technicians and qualify for certification with the State of California.
- CSLO #5: Demonstrate Rapid Patient Extrication and Disentanglement Techniques while performing medical care interventions.

Effective Term

Fall 2023

Course Type

Credit - Degree-applicable

Contact Hours

225

Outside of Class Hours

278

Total Student Learning Hours

503

Course Objectives

Lecture Objectives (139 hours):

1. Describe the legal considerations, roles and responsibilities of the EMT;
2. Identify the different human systems and the basic anatomy and physiology of each;
3. Describe the role and responsibility of the EMT during scene size-up and scene safety;
4. Name the steps required to complete a primary and secondary patient assessment;
5. Explain the purpose of obtaining vital signs and how the information is used for patient assessment;
6. Identify basic components of anatomy and physiology for the respiratory system;
7. Describe the signs and symptoms of respiratory emergencies and pathophysiology of related causes;
8. Explain the intervention and management skills for respiratory emergencies required of the EMT;
9. Identify the basic components of anatomy and physiology for the cardiovascular system;
10. Describe the signs and symptoms of cardiac emergencies and pathophysiology of related causes;
11. Describe the signs and symptoms associated with an acute cardiac event, identify the cardiac pathology and implement the appropriate treatment protocol as an EMT.
12. Describe the basic components of the circulatory system and the physiology of perfusion;
13. Describe the signs and symptoms of hypoperfusion and pathophysiology of shock;
14. Explain the EMT intervention and management skills for shock related emergencies;
15. Describe mechanism of injury and the physiology of critical trauma emergencies;
16. Explain the EMT intervention and stabilization skills required for critical trauma patients;
17. Identify basic components of anatomy and physiology for the musculoskeletal system;
18. Describe the signs and symptoms and pathophysiology of musculoskeletal injuries;
19. Explain the assessment and management skills for stabilizing musculoskeletal injuries;
20. Identify basic components of anatomy and physiology for the nervous system;
21. Describe the signs and symptoms and pathophysiology of neurological emergencies;

22. Explain the assessment and intervention skills for stabilizing neurological injuries;
 23. Describe the signs and symptoms and pathophysiology of various medical emergencies;
 24. Explain the assessment and intervention skills for various medical injuries;
 25. Identify the primary environmental factors and the effect on the different human systems;
 26. Describe the signs and symptoms of heat and cold related illnesses;
 27. Describe the signs and symptoms of different environmental injuries and illnesses;
 28. Explain the assessment and intervention skills for stabilizing environmental emergencies;
 29. Identify the basic components of anatomy and physiology of emergency childbirth;
 30. Describe the stages of labor and normal delivery during childbirth;
 31. Identify the indications and pathophysiology of childbirth complications;
 32. Explain the management and intervention skills for emergency childbirth;
 33. Identify the basic anatomical and physiological differences for pediatric patients;
 34. Explain the assessment and intervention skills for different pediatric emergencies;
 35. Describe the assessment and management skills for behavioral emergencies;
 36. Explain the basic rescue skills and extrication techniques used in patient removal;
 37. Describe the basic scene management skills for a hazardous materials incident;
 38. Explain the EMT roles and responsibilities during disasters and multi-casualty incidents;
 39. Describe the BLS/CPR basic steps for adults;
 40. Describe the steps for AED operation;
 41. Describe the basic steps of CPR for children;
 42. Describe the basic steps of CPR for infants;
 43. Describe use of AED on an infant or child under 8 years of age;
 44. Describe requirements of OSHA standard 29 CFR 1910.1030;
 45. Describe universal precautions used in healthcare professions;
 46. Describe bloodborne pathogens;
 47. Describe how bloodborne pathogens are spread;
 48. Describe the different types of bloodborne pathogens;
 49. Describe occupational practices and engineering controls;
 50. Describe regulated waste and body fluid clean-up;
 51. Describe field associated exposures and infections;
 52. Describe clinical associated exposures and infections;
 53. Describe Exposure Incident and reporting requirements.
 54. Describe treatment protocol for anaphylaxis or severe asthma.
 55. Describe indications for use of auto-injector epinephrine.
 56. Describe actions, indications, contraindications of Naloxone
 57. Explain the signs and symptoms of an opioid overdose
 58. Explain the finger stick blood glucose testing with a Glucometer.
 59. Describe the diabetic emergency and treatment protocol for the symptomatic diabetic patient.
 60. Discuss the EMT role of operating effectively within the rescue task force.
 61. Discuss the (3) levels of Tactical EMS Casualty Care in California.
 62. Explain the indications and contraindications of the optional i-Gel Airway and Supraglottic King Airway devices.
- Skills Lab Objectives (86 hours):

1. In a simulated training scenario, perform primary and secondary assessment on an ill patient and recognize the signs and symptoms associated with medical emergencies;
2. In a simulated training scenario, perform primary and secondary assessment on an injured patient and recognize the signs and symptoms of associated with traumatic injuries;
3. In a simulated training scenario, demonstrate the ability to perform a full set of vital signs, recognize the any abnormal discrepancies, and properly record and communicate the findings;
4. In a simulated scenario properly assess and recognize the need to administer the OTC medication aspirin;
5. In a simulated training scenario, demonstrate the ability to perform initial spinal stabilization and to securely immobilize a patient to a backboard;
6. In a simulated scenario, demonstrate the proper use of tourniquets and hemostatic dressings;
7. In a simulated scenario, demonstrate the proper use and interpretation of Pulse Oximetry;
8. On a simulated training manikin, correctly demonstrate the use of humidifiers, partial non-rebreather and venturi masks for oxygen administration;
9. On a simulated training manikin, correctly assess the patient presenting with a compromised airway and properly insert the oropharyngeal airway adjunct;
10. On a simulated training manikin, correctly assess the patient presenting with a compromised airway and properly insert the nasopharyngeal airway adjunct;
11. On a simulated airway manikin, correctly demonstrate a primary patient assessment and the intervention skills for initiating proper airway management with manual positive pressure ventilation and correctly utilizing the appropriate airway adjunct.
12. On a simulated training manikin, demonstrate the application of the non-rebreather oxygen mask and proper delivery of high flow supplemental oxygen;
13. On a simulated training manikin, demonstrate the application of Continuous Positive Airway Pressure (CPAP) delivery of high flow supplemental oxygen;
14. On a simulated training manikin, demonstrate the application of the automatic external defibrillator and proper delivery of electrical cardioversion on the unconscious and pulseless patient;
15. On a simulated training manikin, demonstrate the proper application of the traction splint apparatus and stabilization of an orthopedic injury;
16. On a simulated training manikin, demonstrate the proper application of the air splinting device and stabilization of an orthopedic injury;
17. On a simulated training manikin, demonstrate the proper assessment of an obstetrical patient and the medical assistance required during emergency childbirth;
18. On a simulated training manikin, demonstrate the recognition of an obstetrical emergency and the required interventions for childbirth complications;
19. During a simulated vehicle extrication demonstrate ability to perform a scene size up and incident safety protocols;
20. During a simulated vehicle extrication, demonstrate ability to gain access to victims to perform disentanglement and rapid patient extrication techniques;
21. Demonstrate the BLS/CPR basic steps for adults;
22. Demonstrate 2-Rescuer team CPR for adults;
23. Demonstrate proper application of AED on patient;
24. Demonstrate proper AED operation and shock delivery;
25. Demonstrate the basic steps for performing CPR on a child;
26. Choose correct AED pads for an infant or child under 8 years;
27. Demonstrate the basic steps for performing CPR on an infant;

28. Demonstrate how to administer mouth-to-mouth breaths to a victim;
29. Demonstrate choking relief of responsive child older than 1 year;
30. Demonstrate choking relief of unresponsive child older than 1 year;
31. Demonstrate how to relieve choking in a responsive/unresponsive infant;
32. Demonstrate proper lifting/moving techniques of an unresponsive patient;
33. Demonstrate the lifting safety techniques used in patient gurney operations;
34. Demonstrate proper hand washing techniques;
35. Demonstrate the use of personal protective equipment;
36. Demonstrate airway management and injection practices.
37. Demonstrate prep, inspection and administration of epinephrine
38. Demonstrate IM injection of epinephrine auto-injector device
39. Demonstrate IN and IM delivery of Narcan for the suspected opioid overdose
40. Demonstrate finger stick blood glucose testing procedure
41. Demonstrate the proper disposal of blood glucose sharps/contaminates
42. Demonstrate proper Tourniquet use, Wound packing and pressure dressings for tactical EMS purposes
43. Demonstrate use of basic and optional airway adjuncts during tactical EMS setting.
44. Demonstrate the proper size-up and insertion techniques for the optional i-Gel airway device.
45. Demonstrate the proper size-up and insertion technique for the supraglottic optional airway.

Clinical Experience Objectives (30 hours):

1. Under the supervision of the EMT program Clinical Coordinator, participate in a mandated hospital orientation and required post examinations; participate in the multi-step clinical application and personal registration process and participate in completing the mandated clinical immunization and vaccination process.
2. Under the supervision of an assigned clinical or field preceptor, complete 24 hours of experience in a hospital emergency room environment and/or a field ride-along with a pre-hospital care provider;
3. Under the supervision of an assigned clinical or field preceptor, participate as directed in all patient care management and interventions, performing skills and assessments within the EMT scope of practice;
4. Under the supervision of an assigned clinical or field preceptor, participate in ten (10) patient contacts performing skills and assessments within the EMT scope of practice.

General Education Information

- Approved College Associate Degree GE Applicability
 - AA/AS - Health Ed/Physical Ed
- 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: Students will take a multiple-choice examination on shock. Standard grading. Example question: Which of the following types of shock deal with blood loss? A. Anaphylactic, B. Septic, C. Neurotic, D. Hypovolemic.
- Skill Demonstrations

- Example: Students will demonstrate the ability to splint a broken leg.

Repeatable

No

Methods of Instruction

- Laboratory
- Lecture/Discussion
- Distance Learning

Lab:

1. During a practical skills lab, the EMT Instructor will demonstrate the essential components of a primary patient assessment and the critical intervention skills necessary for initiating proper airway management and utilization of positive pressure ventilation. Students will identify the appropriate adjunct airway and manually initiate positive pressure ventilation.

Lecture:

1. During a lecture presentation, the instructor will lead a discussion on the pathophysiology of cardiovascular emergencies and discuss the ability of an EMT to recognize the various signs and symptoms associated with a cardiac event. Students will correctly interpret the EKG rhythm, identify the pathology and treatment protocol.

Distance Learning

1. Online lecture on legal considerations. 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. Read the lesson plans on Respiratory Emergencies and explain the physiological differences of internal and external respiration. Identify the different types of respiratory compromise and explain the pathological differences of each condition. Describe the treatment interventions available within the EMT scope of practice.
2. Read the lesson plans on shock and explain the pathology of inadequate tissue perfusion, identify the different types of shock and the pathological differences, and describe the treatment interventions available within the EMT scope of practice.

Writing, Problem Solving or Performance

1. Given a detailed emergency medical scenario, student will utilize standard medical terms to develop an organized medical report for the transfer of patient care. Student will then compose a written report to outline the emergency medical interventions performed, and to summarize the scene management of the incident.
2. Given detailed information of a traumatic injury scenario, student will respond to a series of questions to identify critical steps performed in the primary assessment; describe what signs and symptoms would present with any given injury; and identify the correct interventions required for proper patient stabilization.
3. Given a realistic emergency medical scenario, the student will physically demonstrate the appropriate EMT skills and

interventions to properly stabilize, manage and immobilize a spinal cord injury.

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

Required Materials

- Emergency Care and Transportation of the Sick and Injured
 - Author: American Academy of Orthopedic Surgeons
 - Publisher: Jones & Bartlett Publishers
 - Publication Date: 2016
 - Text Edition: 11th
 - Classic Textbook?:
 - OER Link:
 - OER:
- Emergency Care and Transportation of the Sick and Injured - Student Workbook
 - Author: American Academy of Orthopedic Surgeons
 - Publisher: Jones & Bartlett Publishers
 - Publication Date: 2016
 - Text Edition: 11th
 - Classic Textbook?:
 - OER Link:
 - OER:
- EMT-Basic Review Manual for National Certification
 - Author: Stephen J. Rahm
 - Publisher: Jones & Bartlett Publishers
 - Publication Date: 2008
 - Text Edition: 2nd
 - Classic Textbook?:
 - OER Link:
 - OER:
- HIPAA Handbook for Healthcare Staff
 - Author: Kate Borten
 - Publisher: HCPro
 - Publication Date: 2016
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:
- Navigate Test Prep 2 : EMT Access Code
 - Author: Jones and Bartlett Learning
 - Publisher: Jones and Bartlett Publishing
 - Publication Date: 2016
 - Text Edition:
 - Classic Textbook?:
 - OER Link:
 - OER:

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

Sierra College EMT Clinical Observation Manual with HIPAA (Health Information Awareness Act) Handbook. 2012 edition, Sierra College Printing. Equipment: Stethoscope, Blood Pressure Cuff, Penlight, Watch with second hand or digital seconds. Sierra College EMT Uniform: -shirt - pants -shoes