



## **Cardiology (EMSP 2444)**

### **Credit**

- 4 semester credit hours (3 hours lecture, 3 hours lab)

### **Prerequisite**

- EMT-Basic certification

### **Co-requisite**

- EMSP 1172
- EMSP 2205
- EMSP 2264

### **Course Description**

Assessment and management of patients with cardiac emergencies; includes single and multi-lead ECG interpretation.

### **Required Textbook**

- EMS Program Student Handbook
- Nancy Caroline's Emergency Care in the Streets 8<sup>th</sup>
  - ISBN 13: 9781284137187
- ECG Interpretation made Incredibly Easy, Lippincott, Williams, And Wilkins 5<sup>th</sup>
  - ISBN 13-9781608312894

### **Course Objectives<sup>1</sup>**

Upon completion of this course, the student will be able to:

- Integrate assessment findings with principles of epidemiology and pathophysiology to formulate a field impression and implement a comprehensive treatment/disposition plan for a patient with a cardiovascular complaint.
- Integrate comprehensive knowledge of causes and pathophysiology into management of cardiac arrest and peri-arrest states.
- Integrate a comprehensive knowledge of the causes and pathophysiology into management of shock, respiratory failure or arrest with emphasis on early intervention to prevent arrest.
- Demonstrate knowledge of the main structures and functions of the cardiovascular system's anatomy and physiology.
- Summarize the general assessment of a patient with a cardiovascular emergency.
- Explain the phases that comprise the cardiac action potential.
- Identify the structure and course of all divisions and subdivisions of the cardiac conduction system.
- Identify the components of an ECG rhythm strip.
- Outline a systematic approach to the analysis and interpretation of cardiac dysrhythmias.

<sup>1</sup>Curriculum based on National Highway Traffic Safety Administration: National EMS Education Standards

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- Explain normal sinus rhythm and the ECG characteristics, possible causes, signs and symptoms, and initial emergency care of dysrhythmias.
- Explain the emergency medical care for the symptomatic adult patient with bradycardia.
- Explain the ECG characteristics, possible causes, signs and symptoms, and initial emergency medical care for dysrhythmias originating in the atria.
- Explain the ECG characteristics, possible causes, signs and symptoms, and initial emergency medical care for dysrhythmias originating in the atrioventricular (AV) junction.
- Explain the ECG characteristics, possible causes, signs and symptoms, and initial emergency medical care for dysrhythmias originating in the ventricles.
- Evaluate the dysrhythmias seen in cardiac arrest.
- Explain the emergency medical care of the adult patient with cardiac arrest.
- Describe the components of the post-cardiac arrest care.
- Explain the ECG characteristics, possible causes, signs and symptoms, and initial emergency medical care for AV blocks.
- Give examples of indications for using a 12-lead ECG.
- Indicate the placement of 12-lead ECG electrodes.

### **Course Outline**

- A. Welcome to LIT EMS Program
  1. Introduction of EMS Staff, Instructors and students
  2. EMS program policies
- B. Cardiovascular Emergencies
  1. Anatomy and Physiology
  2. Patient Assessment
  3. Electrophysiology
- C. ECG Fundamentals
  1. Obtaining a rhythm strip
  2. Interpreting a rhythm strip
- D. Recognizing arrhythmias
  1. Sinus Node arrhythmias
  2. Atrial arrhythmias
  3. Junctional arrhythmias
  4. Ventricular arrhythmias
  5. Atrioventricular Blocks
- E. Treating Arrhythmias
  1. Non-pharmacologic Treatments
  2. Pharmacologic Treatments
- F. 12-Lead ECG
  1. Acquisition Modes
  2. Lead Placement
  3. Interpreting a 12-lead ECG
- G. Pathophysiology, Assessment, and Management of Specific Cardiovascular Conditions

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1. Acute Coronary Syndromes
2. Heart Failure
3. Cardiac Tamponade
4. Cardiogenic Shock
5. Hypertensive Emergencies
6. Infectious Diseases of the Heart
7. Vascular Disorders

### **Grade Scale**

90 – 100	A
84 – 89	B
75 – 83	C
70 – 74	D
0 – 69	F

### **Course Evaluation**

Final grades will be calculated according to the following criteria:

Affective Evaluation	10%
Chapter Quiz	20%
Module Exam	20%
Mid-Term Exam	25%
Final Exam	25%

### **Course Policies**

1. Computers, telephones, headphones, and any other electronic devices must be turned off while in class or used only with permission of the instructor.
2. Do not bring children to class.
3. Late assignments will be accepted on a case by case basis.
4. Tests. Students that miss a test are not allowed to make up the test. Students that miss a test will receive a grade of '0'.
5. Attendance Policy. Three absences are allowed. If a student is tardy to class or departs early two (2) times, it will be equal to one (1) absence. Each absence beyond three absences will result in a 5 point deduction from your final grade.
6. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
7. Additional class policies as defined by the EMS Program Student Handbook.

### **Technical Requirements**

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

[https://help.blackboard.com/en-us/Learn/9.1\\_2014\\_04/Student/015\\_Browser\\_Support/015\\_Browser\\_Support\\_Policy](https://help.blackboard.com/en-us/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy) A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources.

### **Disabilities Statement**

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

### **Student Code of Conduct Statement**

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at [www.lit.edu](http://www.lit.edu) or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.