

# 03\_Cardiac Conditions, CPR & First Aid

Content Area: **Science**  
Course(s):  
Time Period: **Full Year**  
Length: **3-4 weeks**  
Status: **Published**

## **General Overview, Course Description or Course Philosophy**

This course covers introductory information as it relates to the evaluation of individuals who have either critical medical conditions or sustained acute injuries, and their subsequent pre-hospital treatment. Students are minimally expected to have the knowledge and skills to perform basic life support and elementary treatment to stabilize a patient for transport to a hospital but not be proficient in utilizing complex life sustaining equipment. Students are expected to know first aid, understand when more experienced or sophisticated help is needed, and to prioritize the need for care. They also must do no harm. The first aid provider is not expected to offer the same level of care as a licensed EMT. This course offers 3 Rutgers University credit with the passing of the final exam.

## **OBJECTIVES, ESSENTIAL QUESTIONS, ENDURING UNDERSTANDINGS**

- Cardiac arrest: cessation of heart beat
- CPR: chest compressions and rescue breaths to maintain blood circulation and oxygen levels
- Chest compression: depressing chest over the sternum to help circulate blood
- Cyanosis: blue gray skin color produced by low oxygen in the blood
- Heart attack: death of heart muscle. Also known as myocardial infarction
- Head tilt-chin lift-repositioning of the head to maintain an open airway
- Airway obstruction: tongue, foreign body, swelling secondary to allergic reaction, spasm, emesis
- Defibrillation: administering a shock to restore heartbeat
- AED: device that analyzes heart rhythm and provides a shock if needed

- Ventricular fibrillation: ventricles contract in a disorganized and non-functional fashion
- Ventricular Tachycardia: rapid heart beat impairing the heart’s ability to fill its chambers resulting in poor organ perfusion

## **CONTENT AREA STANDARDS**

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SCI.HS-LS1-2	Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
VHEL.9-12.9.4.12.H.63	Demonstrate knowledge of technical skills required for career pathways in this cluster by obtaining related certificates, such as Cardiopulmonary Resuscitation (CPR) and First Aid.

## **RELATED STANDARDS (Technology, 21st Century Life & Careers, ELA Companion Standards are Required)**

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LA.RH.11-12.3	Evaluate various perspectives for actions or events; determine which explanation best accords with textual evidence, acknowledging where the text leaves matters uncertain.
LA.RH.11-12.4	Determine the meaning of words and phrases as they are used in a text, including analyzing how an author uses and refines the meaning of a key term over the course of a text (e.g., how Madison defines faction in Federalist No. 10).
LA.RH.11-12.8	Evaluate an author’s claims, reasoning, and evidence by corroborating or challenging them with other sources.
LA.WHST.11-12.2.B	Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience’s knowledge of the topic.
LA.WHST.11-12.2.E	Provide a concluding paragraph or section that supports the argument presented.
WRK.9.1.2.CAP	Career Awareness and Planning
TECH.9.4.2.CT	Critical Thinking and Problem-solving

## **STUDENT LEARNING TARGETS**

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### **Declarative Knowledge**

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Students will understand that:

- Define heart attack and cardiac arrest.

- Describe the steps in the chain of survival.
- Describe and demonstrate how to perform CPR for an adult, child, or infant.
- Describe various methods of rescue breathing.
- Identify signs of choking.
- Identify types of airway obstructions.
- Describe and demonstrate how to care for a choking adult, child, or infant.
- Describe why automated external defibrillators (AEDs) are available in many public facilities.
- Describe the basic workings of the human heart.
- Identify the difference between ventricular fibrillation and ventricular tachycardia.
- Describe basic care procedures for cardiac arrest victims.
- Describe how AEDs function.
- List the steps in using an AED.
- List special considerations for using an AED.
- Describe basic maintenance procedures for an AED

### **Procedural Knowledge**

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Students will be able to:

- Define key terms
- Identify blood flow through the heart
- Describe how to perform CPR & use of AED
- Perform CPR & AED use
- Identify various cardiac and vascular conditions
- Demonstrate how to perform the Heimlich

## **EVIDENCE OF LEARNING**

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### **Formative Assessments**

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Labs

Group work

CERs

Practical evaluations

### **Summative Assessments**

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- Benchmarks – departmental benchmark given at the end of MP1, MP2, and MP3 based on lab practices
- Alternative Assessments
  - Lab inquiries and investigations
  - Lab Practicals
  - Exploratory activities based on phenomenon
  - Gallery walks of student work
  - Creative Extension Projects
  - Build a model of a proposed solution
  - Let students design their own flashcards to test each other
  - Keynote presentations made by students on a topic
  - Portfolio

Medical terminology review:

Have students research the differences between a heart attack and cardiac arrest.

Optional Activities:

Patient simulation virtual activities

## **RESOURCES (Instructional, Supplemental, Intervention Materials)**

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Textbook required by Rutgers University:

Advanced First Aid, CPR, and AED, Seventh Edition

Jones and Bartlett

ISBN-13: 978-1284105315

ISBN-10: 1284105318

CPR training videos

AED training videos

## **INTERDISCIPLINARY CONNECTIONS**

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Debates

Data Analysis

Informational Writing

## **ACCOMMODATIONS & MODIFICATIONS FOR SUBGROUPS**

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See link to Accommodations & Modifications document in course folder.

