

# Course Syllabus

**Department:** Physical Education & Integrated Health

**Date:** February 15, 2013

**I. Course Prefix and Number:** EMCR 260

**Course Name:** Critical Care Emergency Medical Transport-Paramedic - Original

**Credit Hours and Contact Hours:** 6 credit hours and 8 contact hours

**Catalog Description including pre- and co-requisites:** The Critical Care Emergency Medical Transport course is designed to prepare paramedics and nurses to function as members of a critical care transport team. Critical patients that must be transported between facilities require a different level of care from hospital or emergency field patients. Participants will gain an understanding of the special needs of critical care patients during transport, become familiar with the purpose and mechanisms of hospital procedures and equipment, and develop the skills to maintain the stability of hospital equipment and procedures during transport. CEEMTP is open to any paramedic or nurse who has a current professional license/certification and a recommended minimum of one year experience in that role.

**Relationship to Academic Programs and Curriculum including SUNY Gen Ed designation if applicable:**

Can be used a Physical Education or General Elective

**II. Course Student Learning Outcomes:** *State the student learning outcome(s) for the course (e.g. Student will be able to identify...)*

Describe the history of ambulance/air medical transports.

Differentiate between routine and specialty equipment found on a Critical Care Transport unit.

Identify indications for critical care transport.

Describe the interfacility transfer process

Understand and apply the medicolegal aspects of Critical Care Transport

Understand and interpret laboratory data.

Define shock, discuss the major pathophysiologies of shock, describe the assessment techniques to help identify shock. Describe the general management for the patient in shock and describe pharmacological intervention in different types of shock.

Define multisystem organ failure. List the history, signs and symptoms of the patient with sepsis.

Describe the management of the patient with sepsis.

Describe the history, signs, symptoms and management of the patient with acute respiratory distress syndrome (ARDS).

Describe the history, signs, symptoms and management of the patient with disseminated intravascular coagulations (DIC).

Describe the proper infection control procedures that the CCEMTP should take when treating patients.

Assess oxygen saturation using a pulse oximeter.

Assess carbon dioxide levels using an end tidal CO<sub>2</sub> detector.

Identify the categories of information obtained through an ABG analysis.

Describe important landmarks and anatomical structures of the chest wall and respiratory system.

Discuss methods and procedures for plural decompression assessment.  
Identify transport complications associated with pleural decompression.  
Identify indications, purpose and assessment for chest tubes. Identify transport complications for chest tubes.  
Identify indications, procedures and complications for ET tube and tracheal suctioning.  
Identify indications and purpose for portable ventilators. Discuss methods for ventilator assessment and transport complications for portable ventilators.  
Identify indications, criteria and purposes for a tracheostomy.  
Describe procedures to tracheostomy patients and transport complications.  
Identify indications, criteria and purpose for needle and surgical cricothyrotomy. Describe procedures, complications and transport of each.  
Discuss and identify indications, purpose, procedures, transport and complications for retrograde intubations.  
Discuss between types, assessing, transport and complications of invasive lines.  
Identify hemodynamic monitor controls.  
Interpret hemodynamic readings and alarm indications along with troubleshooting procedures.  
Identify transport complications of hemodynamic monitors.  
Identify purposes for invasive hemodynamic monitoring.  
Identify the function of each component of a PA catheter.  
Identify normal hemodynamic pressures and identify normal pressure waveforms.  
Interpret SVO<sub>2</sub> monitoring data and discuss appropriate therapeutic modalities to treat abnormal values.  
Discuss indications of measuring cardiac output and cardiac index.  
Describe problems encountered in measuring PA pressures, state appropriate interventions and describe complications involved.  
Identify indications for blood administration, procedures for blood administration.  
Identify signs and symptoms of transfusion reactions and management procedures for transfusion reactions.  
Describe procedure for administration of whole blood or packed red cells.  
Describe the difference between monitoring and assessing a patient using an ECG machine.  
Demonstrate proper lead placement and identify wave changes relative to myocardial ischemia, injury and infarction.  
Describe possible complications of various infarct locations.  
Identify the complications associated with the ICD and location of placement in the chest wall.  
Describe the procedures for deactivating an ICD with a magnet.  
Understand the basic concepts underlying cardiac pacemaker technology.  
Identify indication for IABP. Define the primary physiologic effects achieved by the inflation and deflations of the IAB.  
Describe the set up and operation of an IABP.  
Identify proper timing and appropriate corrective action as well as transportation complications of IABP.  
Identify the indications, mechanism of action, pharmacokinetics, dosing and side effects of the following types of drugs: Sedatives, Analgesics, Paralytics, Antihypertensives, Volume Expanders, Vasopressors, Bronchodilators, Antiarrhythmics, Antianginals, Thrombolytics, Anticoagulants, Antibiotics, and Etomidate.  
Identify assessment, indications, contraindications, placement, procedures and transport complications for the following: GI, GU and Renal Assessment, NG and OG Feeding Tubes, Urinary Catheters, Ostomies, Hemodialysis and Peritoneal Dialysis, Rectal Considerations.  
Describe the major components of a neurological examination. Describe the differences in the neurological assessment between a brain injured or spinal injured patients. Perform a neurological exam. Identify transport considerations for patients with neurological injuries including intracranial pressure and intracranial pressure monitoring.  
Differentiate operational aspects of critical care transport and conventional prehospital care. Recognize situations warranting diversion or interception.  
Identify indications, complications and transportation of pediatrics, obstetrical/gynecological, moribund and burn patients.

**College Learning Outcomes Addressed by the Course:** (check each College Learning Outcome addressed by the Student Learning Outcomes)

- |  |  |
|--|--|
| <input type="checkbox"/> writing             | <input type="checkbox"/> computer literacy     |
| <input type="checkbox"/> oral communications | <input type="checkbox"/> ethics/values         |
| X <input type="checkbox"/> reading           | <input type="checkbox"/> citizenship           |
| <input type="checkbox"/> mathematics         | <input type="checkbox"/> global concerns       |
| X <input type="checkbox"/> critical thinking | <input type="checkbox"/> information resources |

**III. Assessment Measures (Summarize how the college and student learning outcomes will be assessed):** For each identified outcome checked, please provide the specific assessment measure.

List identified College Learning Outcomes(s)	Specific assessment measure(s)
Reading	Students will read the UMBC handouts and required textbook for each lesson
Critical Thinking	Students will be required to take the UMBC final written exam to receive their certification.

**IV. Instructional Materials and Methods**

**Types of Course Materials:**

Text books

Course Materials disseminated specifically from UMBC (University of Maryland, Baltimore County)

Labs will be done with various pieces of equipment specific to each specialty area.

**Methods of Instruction (e.g. Lecture, Lab, Seminar ...):**

Lecture and labs will be instructed by physicians, nurses, respiratory therapists, etc. with expert knowledge in each of their respective specialty areas.

**V. General Outline of Topics Covered:**

Preparatory – Critical Care Environment

Concepts and Components

Flight Physiology

Air Medical Considerations

Medical Legal Aspects

- Basic Radiographic Interpretation
- Lab Data Interpretation
- Peripheral and Central Vascular Access
- Hemodynamic Monitoring
- Blood Administration

#### Medical Emergencies

- Respiratory
- Cardiology
  - Includes 12 and 15 Lead Interpretation
  - Mechanical and circulatory Assist Devices
- Renal and Urology
- Gastrointestinal
- Neurology
- Endocrinology
- Hematology
- Infectious Disease and Control

#### Airway Management

- Advanced Airways
- Mechanical Ventilation

#### Trauma

- Trauma Care
- Burn Care

#### Special Considerations

- High Risk Obstetrics
- Pediatrics
- Child Abuse
- Sepsis and MODS
- Pharmacology Overview
- Pain Management
- Organ Donation and Transplant