Course Syllabus

Department: Physical Education and Integrated Health

Date: 2/14/13

I. Course Prefix and Number: EMCR 320

Course Name: Advanced EMT Critical Care

Credit Hours and Contact Hours: 6 credit hours and 7 contact hours

Catalog Description including pre- and co-requisites: *supporting data required for grade prerequisite of 'C' or higher.*

This course is designed to prepare the student to administer many Advanced Life Support (ALS) procedures on patients in the pre-hospital setting. This course builds upon the EMT-D and EMT-Intermediate courses. The student that successfully completes the didactic, clinical and field internship will be eligible to sit for the NYS certifying exam. The EMT-Critical Care will work under the direction of medical control physicians to provide one of the highest levels of pre-hospital care available in New York State. Prerequisites: Current NYS Certificate as an Advanced EMT-Intermediate through the Advanced EMT-Intermediate course or Advanced EMT-Intermediate Refresher course. Must maintain certification throughout entire course. Pretesting will be required for all students that enroll in the course.

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

This course may be used as 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…)*

Student will be able to recognize and perform all learning outcomes of the EMT, such as:

- Identify life threatening emergencies
- Take immediate steps to correct any life threatening emergencies
- Perform CPR and use an AED
- Administer oxygen
- Prevent the patients' condition from worsening before higher trained EMS providers' arrive.
- Treat shock, stabilize fractures, bandage wounds and provide other needed care

Student will be able to recognize and perform all learning outcomes of the Advanced EMT-Critical Care, such as:

- Explain the EMS Systems/Role and Responsibilities, Medical Director, Well-Being, Illness and Injury Prevention, Medical/Legal and Ethical Issues.
- Identify the major aspects of anatomy and physiology including body organization, anatomical

terminology, cell transport mechanisms, metabolism, tissue types and basic fluid and electrolyte information.
Review all general pharmacology as taught at the NYS EMT level.
Discuss the foundation material in pharmacology including names and sources of drugs, drug classification, sources of information about drugs, drug legislation, schedules of controlled drugs, and standardization of drugs. Other topics will include general properties of drugs, drug forms, routes of drug administration, interactions and drug storage. Special considerations in drug therapy for pregnant patients, pediatrics and geriatrics are also discussed and review.
Review and understand the autonomic nervous system regarding the mechanism of action of drugs.
Pharmacokinetics and pharmacodynamics will be integrated into this pharmacology action.
Perform safe and precise venous access while gaining knowledge and awareness relative to medical/legal aspects of invasive procedures and medication administration.
Perform mathematical calculations regarding medication calculations and administration. Methods for Calculating dosages include those for intravenous parenteral medications, intravenous infusions, and administration of oral medications,. Methods for calculating doses for infants and children will be discussed and performed.
Establish and/or maintain a patent airway, and oxygenate and ventilate a patient
Recognize and explain anatomy and physiology of the respiratory system and present the upper and lower airways.
Differentiate the differences in the airway between adults and pediatrics.
Recognize lung/respiratory volumes in detail, ventilation and respiration, measurement of gases and causes of decreased oxygen concentrations in the blood.
Discuss the pathophysiology of airway obstruction and its negative impact on a patient's condition.
Perform airway management including assessment, manual maneuvers, various adjunctive equipment and procedures for adults and pediatrics.
Discuss and perform appropriate oxygenation procedures, delivery equipment and devices and special considerations for patients with stoma. This includes various suctioning devices, adjunctive equipment and techniques.
Discuss the pathophysiology of airway obstruction (laryngeal spasm and edema, aspiration, etc.) and recognizing the appropriate management which many include manual maneuvers, adjunctive equipment (oral and nasal airways, endotracheal tub, lighted stylet and multilumen airways), and procedures (orogastric/nasogastric decompression, orotracheal/nasotracheal intubations digital intubations) .
Recognize and identify respiratory compromise, technique and adjunctive equipment. This includes basic ventilation, adjuncts, the automatic transport ventilator, cricoid pressure and ventilating pediatric and patients with stomas.
Perform a more detailed patient assessment with emphasis on a more complete approach to history taking, techniques of the physical exam, scene size-up focuses, initial assessment, focused history and physical exam, a detailed physical exam ending with clinical decision making to develop and emergency care plan for both the trauma and medical patient.
Recognize the various trauma systems and mechanism of injury to a patient. This covers principles of kinematics.

Explain and differentiate the differences between trauma systems, trauma centers, and transportation considerations, Including detailed discussion of energy, how energy exchange occurs and its relationship to blunt and penetrating injuries by body system and cavity.
Explain the pathophysiological principles and assessment finding to formulate a field impression and implement a treatment plan for the trauma patients with suspected head and/or facial injuries.
Recognize the various causes of hemorrhage and various types of shock along with the management of shock.
Understand burn injury management and supportive care:
The student will be able to recognize and explain treatment and management of the medical patients with the following conditions: respiratory emergencies, cardiovascular emergencies, diabetic emergencies, allergic reactions, poison/overdose, neurological emergencies, non-traumatic abdominal emergencies, environmental emergencies, behavioral emergencies, gynecological emergencies, obstetrical emergencies, neonatal resuscitations, pediatric emergencies, and geriatric emergencies.

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

☐ writing	X☐ computer literacy
X☐ oral communications	☐ ethics/values
☐ reading	☐ citizenship
X☐ mathematics	☐ global concerns
X☐ critical thinking	☐ 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)
Computer Literacy	*Student must complete several on line classes requiring completion and certification in NIMS 100, MOLST, Mandatory Child Reporting and Hazardous Materials Awareness. Upon successful completion of these classes on line a certificate is issued that must be kept with the student's records.*
Oral Communications	Student will learn to verbally communicate with the patient through mock patient assessment scenarios and the NYSDOH Bureau of EMS Practical Skills Exam
Reading	Student will complete written quizzes, exams and NYSDOH Bureau of EMS Written Exam

Critical Thinking	Student will develop critical thinking skills through hands on mock patient assessment scenarios and the NYSDOH Bureau of EMS Practical Skills Exam
Mathematics	Student will develop mathematical skills through numerous math calculations for the various drugs and routes of administration.

IV. Instructional Materials and Methods

Types of Course Materials:
Textbooks, Workbooks, Manikins, and various other types of EMS equipment. Instructor will review and reinforce the materials the student has read. The student will be instructed on the various pieces of equipment used in the curriculum.

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

The instructor will lecture. There will be instruction of labs and scenario role playing during the course also. Students also visit a cadaver lab for hands on anatomy classes. Students will also be required to perform hospital and ride along clinical requirements at various departments in area hospitals and ALS Ambulance agencies.

V. General Outline of Topics Covered:

EMS Systems
- EMS Systems Communications
- Medical/Legal/Ethics
- Anatomy and Physiology
- Medical Terminology
- Pathophysiology
- Pharmacology
- Medication Administration
- Intravenous Access
- General Pharmacology
- Airway Management, Ventilation, Respiration, and Oxygenation (Basic and Advanced)
- CPR/AED
- Patient Assessment – Trauma and Medical Patients
  - Scene Size Up
  - Primary Assessment
  - History Taking
  - Secondary Assessment

- Reassessment
- Clinical Decision Making

Trauma Systems and Mechanism of Injury
Hemorrhage and Shock and Resuscitation
Burns
Head, Thoracic and Abdominal Trauma
Medical Emergencies

- Medical Overview
- Neurology
- Abdominal and Gastrointestinal Disorders
- Infectious Diseases
- Endocrine
- Psychiatric
- Cardiovascular
- Respiratory
- Genitourinary/Renal
- Gynecology

Special Patient Populations

- Pregnant Patients
- Pediatrics
- Geriatrics
- Patients with Special Challenge

EMS Operations

- Principles of Safely Operating a Ground Ambulance
- Incident Management
- Air Medical
- Vehicle Extrication
- Hazardous Materials Awareness