

# Northwest Arkansas Community College

## Division of Health Professions

**Discipline Code**

EMTP

**Course Number**

1131

**Course Title**

Traumatology Lecture

**Catalog Description**

Management and treatment of traumatic injuries involving soft tissues, central nervous system, and musculoskeletal structures. Material included is based on Prehospital Advanced Trauma Life Support Program (PHTLS) by the National Association of EMTs, the training curriculum developed by the American Academy of Orthopedic Surgeons. This class is a “Flipped” classroom and students will watch lecture away from the classroom and take quizzes and exams. Quizzes and exams will be discussed in class and material that needs further attention will be taught by the instructor.

**Prerequisite**

Admission into the paramedic program and enrolled as a student at NWACC

**Credit Hours**

1 credit hours

**Contact hours**

16 hours Lecture

**Load hours**

1 load hours

**Semesters Offered**

Spring

**ACTS Equivalent**

None

**Grade Mode**

A-F

**Learning Outcomes**

Associate injury risk factors with the disease triangle

Effectively use “teachable moment” in his or her practice as an EMS provider to provide injury prevention Education.

Relate the importance of accurate, attentive scene observations and documentation to data by EMS providers to the success of injury prevention initiatives.

Assist in the development, implementation, and evaluation of injury prevention programs

Advocate the role of EMS providers in injury prevention

Define energy and force as they relate to trauma

Relate the laws of motion energy to the kinematics of trauma

Relate the exponential change in kinetic energy as a result of increased speed to the potential for injury

Given the description of a motor vehicle crash, use kinematics to predict the likely injury pattern for an unrestrained occupant.

Associate the principles of energy exchange involved in a given situation to the pathophysiology of the head spine, thorax, and abdomen resulting from that exchange.

Anticipate specific injuries and their causes as related to interior and exterior vehicle damage

Describe the function of vehicle occupant restraint systems.

Describe the physics of penetrating injuries

Relate the laws of motion and energy to mechanisms other than motor vehicle crashes

integrate principles of the kinematics of trauma into patient assessment

Identify potential threats to the safety of the patient, bystanders and emergency personnel that are common to all emergency scenes and potential threats that are unique to a given scenario. Provide an illustration of the significance of patient assessment in the context of overall management of the trauma patient

Systematize the discrete steps involved in the process of assessing and managing the trauma patient into an organized and rational process.

integrate analysis of scene safety, scene situation, and kinematics into the assessment of the trauma patient to make patient care decisions

Given a mass casualty incident (MCI) scenario, make trauma triage decisions based on assessment findings.

Employ a process of critical questioning to associate examination and scene findings to their likely causes and consequences.

Relate the concepts of minute volume and oxygenation to the pathophysiology of trauma

Explain the mechanisms by which supplemental oxygen and ventilatory support are beneficial to the patient in the context of trauma

Given a scenario that involves a trauma patient, select the most effective means of providing a patent airway to suit the needs of the patient

Integrate the principles of ventilation and gas exchange with the pathophysiology of trauma to identify patients with inadequate perfusion

Given situations that involve various trauma patients, formulate a plan for airway management and ventilation

Differentiate between patients who require rapid stabilization and transport because of thoracic trauma and those whom further on-the-scene assessment and management is appropriate. Explain the pathophysiology of shock, including progression through the phases

Relate signs and symptoms of shock to the underlying pathophysiology.

Relate the effects of the severity of shock and the quality of the initial management of shock to the potential for post resuscitation complications.

Differentiate between patients for whom rapid transport to a trauma center is required and those who require less aggressive management.

Discuss the limitations of the field management of shock

Relate the pathophysiology of shock to the need for definitive treatment

integrate the principles of pathophysiology with physical examination data to formulate a treatment plan for the patient in shock.

Relate external signs of abdominal injury to the potential for specific abdominal organ injuries  
Surmise the pathophysiologic effects of blunt or penetrating injury to the abdomen based on assessment data obtainable by a prehospital care provider.

Analyze scene assessment data to determine the level of suspicion for abdominal trauma.

Recognize the secondary surgery assessment findings indicative of intra-abdominal bleeding  
Describe the indication, contraindications, advantages, disadvantages, and limitations of the use of PASG for abdominal and pelvic hemorrhage.

Identify the indications for rapid intervention and transport in the context of abdominal trauma

Describe the effects of maternal trauma on the fetus and the priorities of its management.

Formulate a plan of field intervention for both short and prolonged transport times for patients with TBI

Compare and contrast the pathophysiology, management, and potential consequences of specific types of primary TBI and secondary brain injury.

Describe the epidemiology of spinal injuries

Compare and contrast the most common mechanisms of injury that produce spinal injury in adults with those most common in children.

Recognize patients with the potential for spinal trauma

Integrate principles of anatomy and pathophysiology with assessment data and principles of trauma management to formulate a treatment plan for the patient with obvious or potential spinal injury.

Discuss factors associated with prehospital findings and interventions that may affect spinal injury morbidity and mortality rates.

List three groups used to classify patients with extremity injuries and relate this to priority of care.

Discuss the significance of hemorrhage in both open and closed fractures of the long bones, pelvis and ribs.

List the five major pathophysiologic problems associated with extremity injuries that may require management in the prehospital setting.

Explain the management of extremity trauma as an isolated injury in the presence of multisystem trauma.

Given a scenario involving an extremity injury, select and appropriate splint and splinting method.

Describe the special considerations involved in femur fracture management. Describe management of amputations.

Understand treatment and pathophysiology for heat and cold emergencies Identify the unique differences in injury patterns for children.

Identify the quantitative vital signs for children. Calculate the pediatric trauma score

Identify the signs of pediatric trauma suggestive of child abuse Discuss the epidemiology of trauma in the elderly

Explain the interaction of various preexisting medical problems with traumatic injuries in the elderly to produce differences in the pathophysiology and manifestations of trauma in the elderly. Compare and contrast the management of the elderly trauma patient with that of the younger trauma patient.

Act as a role model in attending to the specific needs of the elderly trauma patient. Justify decisions to use either ground or air transport

Explain the importance of each component of a trauma system

## **General Education Outcomes Supported**

- Students develop higher order thinking skills.
- Students gain greater awareness of cultural perspectives.
- Students can write clear, coherent, well-organized documents, substantially free of errors.
- Students develop effective oral communication skills.

## **Standard Practices**

### **Topics list**

- Trauma Management Kinematics of Trauma
- Principles of Patient assessment and Trauma Management Airway, Oxygenation, and Ventilation
- Shock
- Thoracic Trauma
- Central Nervous System Trauma, Injuries to the Brain and Spinal Cord Thermal Trauma
- Trauma in Special Patient Populations
- Golden Principles of Prehospital Trauma Care
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### **Grading guidelines**

Grades are cumulative from chapter exams and practical skills and assessments.