

NRPM 106: Airway and Injury Management in the Field Syllabus

[Semester and year]



Instructor information

Instructor	Email Address	Office hours
Paula Johnson	Paula.johnson@princetonrescue.com	Vary

General information

Description

The learner will integrate complex knowledge of anatomy, physiology, and pathophysiology into the assessment to develop and implement a treatment plan with the goal of assuring a patent airway, adequate mechanical ventilation, and respiration for patients of all ages. Additionally, the student will integrate assessment findings with principles of epidemiology and pathophysiology to formulate a field impression to implement a comprehensive treatment disposition plan for an acutely injured patient. *Co-Requisite: NRPM 102, NRPM 102L, NRPM 104, NRPM 104L, NRPM 106L*

Expectations and goals

Upon Successful completion of this course, students will be able to:

- List the components of a comprehensive trauma system.
- Identify and explain any special assessment and care considerations for patients with blunt trauma.
- Identify and explain any special assessment and care considerations for patients with penetrating trauma.
- Describe the epidemiology, including the morbidity/mortality and prevention strategies, for shock and hemorrhage.
- Discuss the pathophysiology of hemorrhage and shock.
- Describe the anatomy and physiology of hemorrhage and shock.
- Describe the anatomy and physiology of the skin and remaining human anatomy as they pertain to burn injuries.
- Identify and explain any special assessment and care considerations for patients with burn injuries.
- Identify and explain any special assessment and care considerations for patients with Head, face, neck, or spinal trauma
- Identify and explain any special assessment and care considerations for patients with chest, abdominal, or genitourinary trauma.
- Identify and explain any special assessment and care considerations for patients with orthopedic trauma.
- Identify and describe any special assessment and care considerations for patients who experience environmental emergencies.

- Identify common pathological events that affect the pulmonary system.
- Discuss abnormal assessment findings and compare various airway and ventilation techniques (including medication) used in the management of pulmonary diseases.

Course Delivery Method: Hybrid

Course materials

Required materials

Computer with Internet capabilities to access:

- <https://CourseSites.com>

Optional materials

[]

Required text

- Nancy Caroline's Emergency Care in the Streets; 8th edition, 2013 by Elling and Smith; Publisher Jones and Bartlett. ISBN: 978-1-284-13718-7 & 978-1-284-13717-0

Course schedule (*Weeks correspond to semester schedule)

Week	Topic	Pre-Class Assignment	Class Session	Reflective Assignment <i>(DUE: Friday after class session)</i>
10	Airway Management	Video Lecture: Airway Anatomy	<i>(covered in 106L)</i>	• Quiz: Airway Mgt
11	• Respiration • Artificial Ventilation	• Video Lecture: Resp. Physio. • Video Lecture: Adequate/Inadequate Resp.	• Breathing pattern & Lung sound recognition • Pig Lung Lab	• Virtual Patient Encounter: Difficulty Breathing • Quiz: Capnography • You Are There - Reality Based Case (airway)
12	Artificial Ventilation	• Video Lecture: RSI Drugs 101 • Yt Video: Mechanical Ventilation & Vent settings	• Lecture: Vent Mgt • Lecture: RSI Drugs • Disease and Treatment Wkst (portfolio of learning)	• Case Study: mechanical vent. • Pharm. RSI
13	• Trauma Overview • Bleeding	• Video Lecture: Kinematics in Trauma • Video Lecture: Blood Loss & Shock	Blood Loss Lab	• GCS Case
14	Chest Trauma ABD/GI/GU Trauma	• Video Lecture: Chest Trauma • Video Lecture: ABD Trauma	• Video Based Case(facilitated learning) • Case Development #1-3	• Video Case: 17 y/o trauma • Quiz: ABD/GI/GU Trauma
15	Orthopaedic Trauma Soft Tissue Trauma	• Video Lecture: Ortho. Trauma • Video Lecture: Soft Tissue Injury • Video Lecture: Burn Trauma #1-2	• Video Based Case • Trauma Tic Tac Toe • Burn Calculation Scenarios	• Quiz: Ortho Trauma • Case Study: Full Thickness Burns/Parkland

		• Video Lecture: Parkland Formula		
16	Head, Facial, Neck & Spinal Trauma	• Video Lecture: Head/Facial Trauma • Video Lecture: SCI	• Video Based Case • Case Development #1-3	• Video Case Training: 15 y/o cycle/SUV • Case Study SCI • Video Case Training: 37 y/o Stab victim
17	Nervous System Trauma Special Considerations in Trauma	• Video Lecture: CPP & ICP	• (covered in 106L) • Video Based Case #308	• Case Study: Epidural Hematoma • Quiz: Special Considerations in Trauma
18	Multi-system Trauma		• Video Based Case • Trauma Case “The Most Frightening Night”	• Quiz: multisystem Trauma
				SUMMATIVE WRITTEN EXAM

Procedures for Evaluation

- A. *Students must complete each NRPM course with a grade point average of at least 70%. Any student who does not have a 70% average at the completion of an NRPM course will not be allowed to continue in the program. The student’s academic standing will be discussed with the student periodically throughout the program.
- B. If a student scores below a 70% on a NRPM Cumulative examination, the student will be required to retake the examination until a score of 70% is attained; however, the original score will stand as the recorded score.
- C. Individual skills that comprise a skill lab are mandatory per the National Registry of EMT’s. A student must complete each skill with the minimum points required AND the established number of SUCCESSFUL attempts meeting those minimum point standards. A grade will be issued to the student based on their participation in lab sessions and their reporting in platinum planner.

***NOTE:** NRPM 202 is the exception to this policy. In this course, you must successfully complete each sub-specialty based on the criteria from each governing agency. The final grade issued for this course will be a “pass/fail.” If the student is unable to receive a passing grade for this class, the student will NOT be allowed to continue in the Paramedic Program.

Grading Components and Weights:

The Paramedic Program Student's Classroom Assessment grade will be the sum of the weighted scores comprising the parameters of course work outlined below.

Didactic Courses	
80%	Coursework <ul style="list-style-type: none">• Homework/Special Projects - 5%• Quizzes - 5%• Case Studies/Objectives - 20%• Exams - 50%
20%	Monthly Behavioral Evaluations

Grading Scale:

100-90 = A 89-80 = B 79-70 = C 69-60 = D <59 = F

All students must maintain a C average in each course to continue throughout the program

Attendance Policy

All material is important to your success; therefore, students absent more than 5% of the course without a valid excuse will be dismissed from the program of study.

There are two types of absences recognized as a "valid excuse" by Princeton Rescue Squad's Education Department: (1) absence resulting from participation in an activity where you are officially representing the Education Department; and (2) absence caused by unforeseeable and unavoidable circumstance which is beyond your control. All other absences are considered willful and will not count as excused. It is your responsibility to provide your instructor with a proper explanation and documentation of these valid absences. It is the responsibility of the student to make up any work or testing missed. The missed (comparable) coursework and exams must be completed within 72 hours of the absence and prior to the last date of the class.

Online Video course Lectures associated with "Hybrid" classes are required to be completed by 10am on the morning of the deadline listed. These deadlines are typically due weekly and attendance will be taken based on your submission of these Lectures. If you fail to submit the Lecture when due, you will be marked absent for that week's hybrid class.

Tardiness will not be tolerated. Any student who shows up later than 15 minutes into the beginning of a course or leaving a class session 30 minutes or more before the end of the class day will result in the mark of tardy on his/her record. An accumulation of 5 tardies will result in an unexcused absence.

Students may withdraw from the course at any time. Any student that misses more than two (2) consecutive class sessions without contacting the course instructor will be considered to have withdrawn from the course.

Student Advisory and Evaluation

Faculty will routinely discuss student progress throughout the program of study at regular intervals (increments no longer than 25% of the program) to provide learners with adequate

chances to take corrective actions. During these mandatory meetings with a student item(s) or subject(s) of concern to discuss may include, but are not limited to:

Excessive absences and tardiness, failure to turn in assignments / clinical rotations on time, classroom / clinical behavior concerns, plagiarism, cheating, struggling or failure to maintain a GPA of 70%, etc.

A Student Advisory Form will be filled out and signed by both the Faculty member addressing the concern, and the student. Once the concern has been documented, the Program Instructor and student will discuss possible resolutions to the problem and a proposed action plan will be written on the Advisory Form. The student may use the Advisory Form to record a rebuttal against the initial concern or proposed action plan. The instructor will then mark the form “unresolved” and forward it to the Education Director who investigate the matter and make a determination on a second Advisory Form. Copies of these completed Advisory Forms are available to the student; however, originals must and will be retained by the Education Program.

Standards of Conduct Regarding Cell Phone Use

As adults, you are permitted to retain your cellular devices unless during testing. At that time, all cell phones must be placed in a bag away from your testing area or given to your instructor until the testing is complete. It is common during lecture for students to utilize their cell phones to look up information regarding topics discussed in the class session, and this practice is permitted. However, if the instructor or other member of the instructional or administrative staff see that cell phones are being used for other purposes (ie: facebook, messenger, etc.) during lecture, lab, or any other designated course activity then the following discipline policy will take place:

- First offense - verbal warning
- Second offense - written warning
- Third offense - dismissal from the program

Academic Dishonesty

As a student and pre-hospital professional, you are expected to adhere to a professional code of conduct and not engage in plagiarism, cheating, falsifying information or records, or any other such activity. Failure to adhere to this code of conduct will result in disciplinary action up to and including dismissal from the program.

Grounds For Dismissal

A student may be dismissed from the program for the following reasons:

1. Absenteeism greater than 1 unexcused class.
2. Receiving a “D” or “F” as a cumulative grade for the course.
3. Insubordination (in class, lab, or in clinical)
4. The conviction and/or known use of, distribution of, or possession of illegal drugs, or controlled substances.
5. Failure to accomplish clinical assignments and objectives
6. Unprofessional or unethical conduct
7. Cheating in related or professional EMS courses or in clinical documentation.

NRPM 106 Course Objectives:

1. Describe the major structures of the respiratory system, including the upper and lower airway.
2. Discuss the physiology of breathing, including ventilation, oxygenation, and respiration.
3. Discuss important concepts related to ventilation, including partial pressure, volumes, and neural and chemical control of ventilation.
4. Explain positive-pressure ventilation versus negative-pressure ventilation.
5. Discuss respiratory drive versus hypoxic drive.
6. Describe factors related to pathophysiology of respiration, including ventilation/perfusion ratio mismatch, hypoventilation, hyperventilation, and circulatory compromise.
7. Discuss acid/base imbalance, specifically respiratory acidosis and respiratory alkalosis.
8. List the signs of adequate breathing.
9. List the signs of inadequate breathing.
10. List abnormal breathing patterns to recognize when assessing a patient is breathing.
11. Discuss how to assess a patient's breath sounds.
12. List methods for end-tidal carbon dioxide assessment, and discuss its importance.
13. Describe the assessment and care of a patient with apnea.
14. Understand how to assess for adequate and inadequate respiration, including the use of pulse oximetry.
15. Understand how to assess for a patent airway.
16. Describe how to perform the head tilt-chin lift maneuver.
17. Describe how to perform the jaw-thrust maneuver.
18. Describe how to perform the tongue-jaw lift
19. Understand the importance and techniques of suctioning.
20. Explain how to measure and insert an oropharyngeal (oral) airway.
21. Describe how to measure and insert a nasopharyngeal (nasal) airway.
22. Explain the use of the recovery position to maintain a clear airway.
23. Describe the importance of giving supplemental oxygen to patients who are hypoxic.
24. Understand the basics of how oxygen is stored and the various hazards associated with its use
25. Describe the use of a nonrebreathing mask, and state the oxygen flow requirements for its use.
26. Understand the indications for using a nasal cannula rather than a nonrebreathing face mask.
27. Describe the indications for use of a humidifier during supplemental oxygen therapy.
28. Explain the steps to take to perform mouth-to-mouth, mouth-to-nose, and mouth-to-mask ventilation.
29. Describe the use of a one-, two-, or three-person bag-mask device and a manually triggered ventilation (MTV) device.
30. Discuss automatic transport ventilators and how to use them.
31. Describe the signs associated with adequate and inadequate artificial ventilation.
32. Describe the indications, contraindications, and complications of use of continuous positive airway pressure (CPAP).
33. Explain considerations surrounding gastric distention and how to perform nasogastric and orogastric decompression.

34. Discuss airway management considerations for patients with a laryngectomy, tracheostomy, or stoma.
35. List the advanced airway devices and techniques available to the paramedic.
36. Discuss methods used to predict the difficult airway.
37. Describe the advantages, disadvantages, and equipment used when performing endotracheal intubation
38. Explain how to determine correct endotracheal tube size.
39. List factors to consider when determining correct laryngoscope blade size.
40. Discuss the indications, contraindications, advantages, disadvantages, and complications of orotracheal intubation
41. List the methods available for confirming correct endotracheal tube placement and the advantages and disadvantages of each method.
42. Describe how to secure an endotracheal tube.
43. Discuss the indications, contraindications, advantages, disadvantages, and complications of nasotracheal intubation.
44. Discuss the indications, contraindications, advantages, disadvantages, and complications of digital intubation.
45. Discuss the indications, contraindications, advantages, disadvantages, and complications of transillumination intubation.
46. Discuss the indications, contraindications, advantages, disadvantages, and complications of retrograde intubation.
47. Explain what to do when intubation fails.
48. Explain how to perform tracheobronchial suctioning.
49. Discuss considerations related to field extubation.
50. Discuss the indications, contraindications, advantages, disadvantages, and complications of endotracheal intubation in the pediatric patient.
51. Explain how to determine correct endotracheal tube size for a pediatric patient.
52. List factors to consider when determining correct laryngoscope blade size for a pediatric patient.
53. List possible pharmacologic adjuncts to airway management and ventilation, including both sedatives and neuromuscular blocking agents used for emergency intubation.
54. Discuss the procedure for performing rapid-sequence intubation (RSI).
55. Discuss the esophageal tracheal Combitube (ETC), including how it works, its indications, contraindications, and complications, and the procedure for inserting it.
56. Discuss the laryngeal mask airway (LMA), including how it works, its indications, contraindications, and complications, and the procedure for inserting it.
57. Discuss King LT airway devices, including how they work, their indications, contraindications, and complications, and the procedure for inserting them.
58. Discuss the Cobra perilaryngeal airway (CobraPLA), including how it works, its indications, contraindications, and complications, and the procedure for inserting it.
59. Discuss the indications, contraindications, advantages, disadvantages, and complications of performing open cricothyrotomy.
60. Discuss the indications, contraindications, advantages, disadvantages, and complications of performing needle cricothyrotomy.
61. Understand the causes of foreign body airway obstruction.

62. Describe the management of mild and severe foreign body airway obstruction in an adult, a child, and an infant.
 1. Define the term “trauma,” and explain its relationship to energy, kinetics, and biomechanics.
 2. Describe some of the factors that affect types of injury.
 3. Define the terms “mechanism of injury” and “index of suspicion,” and explain their relationship to the paramedic’s assessment of trauma
 4. Define the term “blunt trauma,” and provide an example of the mechanism of injury that would cause it to occur.
 5. Describe how impact patterns can help the paramedic to determine or predict types of injury following motor vehicle crashes.
 6. Describe the five types of motor vehicle crashes and the injury patterns associated with each one.
 7. Describe the benefits of seat belt restraints during a motor vehicle crash.
 8. Describe the four types of motorcycle crashes.
 9. Describe the three predominant mechanisms of injury during a pedestrian versus automobile collision.
 10. Discuss five specific factors to consider during assessment of a patient who has been injured in a fall.
 11. Define the term “penetrating trauma,” and provide examples of the mechanisms of injury that would cause low-, medium-, and high-velocity injuries to occur.
 12. Describe the factors to consider during the assessment of a patient who has sustained a gunshot wound.
 13. Discuss primary, secondary, tertiary, quaternary (miscellaneous), and quinary blast injuries, and describe the anticipated damage each one will cause to the body.
 14. Describe the components of a blast shock wave.
 15. Discuss considerations in the assessment and management of a patient with a blast injury.
 16. Describe multisystem trauma and the special considerations that are required for patients who fit this category.
 17. Outline the major components of trauma patient assessment, including considerations related to multisystem trauma.
 18. Provide a general overview of trauma management, including considerations related to multisystem trauma.
 19. Summarize the American College of Surgeons Committee on Trauma and Centers for Disease Control and Prevention triage decision scheme for referral to a trauma center.
 20. Describe the American College of Surgeons Committee on Trauma classification of trauma centers and how it relates to making an appropriate destination selection for a trauma patient.
 21. Describe trauma patient management in relation to scene time and transport selection, and list the Association of Air Medical Services criteria for the appropriate use of emergency air medical services.
 22. Define the term “trauma,” and explain its relationship to energy, kinetics, and biomechanics
 23. Describe some of the factors that affect types of injury.
 24. Define the terms “mechanism of injury” and “index of suspicion,” and explain their relationship to the paramedic’s assessment of trauma.
 25. Define the term “blunt trauma,” and provide an example of the mechanism of injury that would cause it to occur.
 26. Describe how impact patterns can help the paramedic to determine or predict types of injury following motor vehicle crashes.

27. Describe the five types of motor vehicle crashes and the injury patterns associated with each one.
28. Describe the benefits of seat belt restraints during a motor vehicle crash
29. Describe the four types of motorcycle crashes.
30. Describe the three predominant mechanisms of injury during a pedestrian versus automobile collision.
31. Discuss five specific factors to consider during assessment of a patient who has been injured in a fall.
32. Define the term “penetrating trauma,” and provide examples of the mechanisms of injury that would cause low-, medium-, and high-velocity injuries to occur.
33. Describe the factors to consider during the assessment of a patient who has sustained a gunshot wound.
34. Discuss primary, secondary, tertiary, quaternary (miscellaneous), and quinary blast injuries, and describe the anticipated damage each one will cause to the body.
35. Describe the components of a blast shock wave.
36. Discuss considerations in the assessment and management of a patient with a blast injury.
37. Describe multisystem trauma and the special considerations that are required for patients who fit this category.
38. Outline the major components of trauma patient assessment, including considerations related to multisystem trauma.
39. Provide a general overview of trauma management, including considerations related to multisystem trauma.
40. Summarize the American College of Surgeons Committee on Trauma and Centers for Disease Control and Prevention triage decision scheme for referral to a trauma center.
41. Describe the American College of Surgeons Committee on Trauma classification of trauma centers and how it relates to making an appropriate destination selection for a trauma patient.
42. Describe trauma patient management in relation to scene time and transport selection, and list the Association of Air Medical Services criteria for the appropriate use of emergency air medical services.
 1. Discuss the anatomy and physiology of the cardiovascular system.
 2. Discuss the pathophysiology of external and internal hemorrhage.
 3. Describe the body’s physiologic response to hemorrhaging.
 4. Describe the assessment and management of a bleeding patient.
 5. Discuss the pathophysiology of hemorrhagic shock.
 6. Describe the types of shock.
 7. Discuss the phases of shock
 8. Discuss the classes of hemorrhage.
 9. Describe the assessment and management of a patient with hemorrhagic shock.
 10. Describe how to assess and manage a patient with external hemorrhage.
 11. Describe how to apply a commercial tourniquet.
 12. Describe how to assess and manage a patient with internal hemorrhage.
 1. Describe how to assess and manage a patient with hemorrhagic shock.
 2. Discuss the anatomy and physiology of the skin, including the layers of the skin
 3. Understand the functions of the skin, and its role in the inflammatory process.

4. Discuss the pathophysiology of soft-tissue injuries, including closed injuries, open injuries, and crush injuries
5. Discuss the process of wound healing, including hemostasis, inflammation, epithelialization, neovascularization, and collagen synthesis.
6. Explain skin tension lines and how they relate to wound healing.
7. Discuss alterations in the wound healing process, including anatomic reasons, high-risk wounds, abnormal scar formation, pressure injuries, and wounds requiring closure.
8. Discuss the pathophysiology of wound healing, including infection, gangrene, tetanus, and necrotizing fasciitis.
9. Describe the assessment process for patients with a soft-tissue injury, with a focus on when to perform a physical exam.
10. Describe the relationship between airway management and the patient with closed and open injuries.
11. Discuss emergency medical care of a patient with a soft-tissue injury.
12. Discuss the principles for treating a closed wound.
13. Discuss the principles for treating an open wound.
14. List the steps in controlling external bleeding.
15. List the steps for applying a tourniquet.
16. Understand the functions and types of sterile dressings and bandages.
17. Discuss methods and materials for site-specific dressings.
18. Describe complications of improperly applied dressings.
19. Discuss the role of pain control when managing patients with soft-tissue injuries.
1. Discuss the pathophysiology, assessment, management of abrasions, lacerations, puncture wounds, impaled objects, avulsions, amputations, animal and human bites, crush syndrome, compartment syndrome, and high-pressure injection.
2. Describe the anatomy and physiology of the skin, including the layers of the skin.
3. Describe the anatomy of the surface of the eye.
4. Summarize the general pathophysiology of burn injury
5. Describe five types of thermal burns.
6. Discuss the symptoms of burn shock.
7. Identify some of the warning signs of intentional burns associated with the potential abuse of children, elders, and people with disabilities.
8. Define and describe the characteristics of superficial, partial-thickness, and full-thickness burns.
9. Describe the pathophysiology of inhalation burns.
10. Summarize the safety concerns that must be addressed during the size-up of a burn scene.
11. Summarize the primary and secondary assessment processes for a burn patient.
12. Compare three different methods for determining burn severity.
13. Contrast the burn severity classification for infants and children with that for adults.
14. List the referral criteria for transporting a patient to a burn unit.
15. Discuss emergency medical care of a patient with a burn injury, including specific airway management techniques, fluid resuscitation techniques, and pain management.
16. State the Consensus formula, and discuss its use as it pertains to the prehospital environment, including types of solutions to use and amounts to administer during the prehospital phase.

17. Describe the management of thermal burns, including the use of sterile dressings.
18. Describe the management of burn shock.
19. Describe the management of inhalation burns.
20. Describe the pathophysiology, assessment, and management of chemical burns of the skin and eye.
21. Describe the pathophysiology, assessment, and management of electrical burns.
22. Describe the pathophysiology, assessment, and management of radiation burns.
23. Discuss the special considerations involved in the treatment of pediatric and geriatric patients.
 1. Summarize some of the long-term consequences of burn injury on the patient's quality of life and on the paramedic's psychological well-being.
 2. Discuss the anatomy and physiology of the head, face, and neck, including major structures and specific important landmarks.
 3. Describe the factors that may cause the obstruction of the upper airway following a facial injury.
 4. Discuss the general patient assessment process for a patient with a face or neck injury.
 5. Discuss general emergency care of a patient with a face or neck injury, including the importance of airway management.
 6. Discuss different types of facial injuries, including soft-tissue injuries, nasal fractures, mandibular fractures, maxillary fractures, orbital fractures, and zygomatic fractures, as well as patient care considerations related to each one.
 7. Describe the process of providing emergency care to a patient who has sustained face and neck injuries, including assessment of the patient, review of signs and symptoms, and management of care.
 8. List the steps in the emergency medical care of the patient with soft-tissue wounds of the face and neck.
 9. Discuss different types of eye injuries, including lacerations, foreign bodies, impaled objects, blunt trauma, and burns, as well as related patient care considerations.
 10. List the steps in the emergency medical care of the patient with an eye injury, including lacerations, blunt trauma, foreign object, impaled object, and burns.
 11. Discuss different types of ear injuries, including soft-tissue injuries and a ruptured eardrum, as well as related patient care considerations.
 12. List the steps in the emergency medical care of the patient with injuries of the ear, including lacerations and foreign body insertions.
 13. Discuss different oral injuries, including soft-tissue injuries and dental injuries, as well as related patient care considerations.
 14. List the steps in the emergency medical care of the patient with dental and cheek injuries, including how to handle an avulsed tooth.
 15. Discuss specific injuries to the anterior part of the neck, including soft-tissue injuries, injuries to the larynx, injuries to the trachea, and injuries to the esophagus.
 16. List the steps in the emergency medical care of the patient with a penetrating injury to the neck, including how to control regular and life-threatening bleeding.
 17. Discuss spine trauma that does not involve the spinal cord, including the pathophysiology of sprains and strains and their assessment and management.
 18. List the major bones of the skull and spinal column and their related structures, and describe their functions as related to the nervous system.
 19. Describe the regions of the brain, including the cerebrum, diencephalon, brainstem, and the cerebellum, and their functions.

20. Describe the anatomy and physiology of the spinal cord and spinal nerves.
21. Describe the steps in the patient assessment process for a person who has a suspected head or spine injury, including specific variations that may be required as related to the type of injury.
22. Discuss mechanisms of injury (MOIs) that are potential causes of head and spine injuries and which the paramedic should consider when performing a patient assessment.
23. Describe when endotracheal intubation should be performed in a patient with a head injury versus a spinal cord injury.
24. Discuss specific assessments to perform for a patient with possible spinal cord injury, including a neurologic exam.
25. Discuss when it would be appropriate to establish intravenous access in a patient with a head or spine injury, including the importance of judicious fluid administration.
26. Discuss general signs and symptoms of a head injury.
27. Discuss types of skull fractures, including linear, depressed, basilar, and open skull fractures.
28. Define traumatic brain injury, and explain the difference between a primary (direct) injury and a secondary (indirect) injury, providing examples of possible MOIs that may cause each one.
29. Discuss the pathophysiology of intracranial pressure and posturing that can occur in the presence of brain injury.
30. Discuss diffuse brain injuries including cerebral concussion and diffuse axonal injury, and their corresponding signs and symptoms.
31. Discuss focal brain injuries including cerebral contusion and the various types of intracranial hemorrhage, and signs and symptoms of each.
32. Describe management of head and brain injuries, including thermal management, treatment of associated injuries, and pharmacologic therapy
33. Discuss assessment and management of scalp lacerations.
34. Discuss MOIs that may damage the cervical, thoracic, or lumbar spine, including flexion, rotation with flexion, vertical compression, and hyperextension.
35. Define primary spinal cord injury versus secondary spinal cord injury, including complete versus incomplete cord injury
36. Discuss various cord syndromes and their signs and symptoms, including anterior cord syndrome, central cord syndrome, posterior cord syndrome, cauda equina syndrome, and Brown-Séquard syndrome.
37. Discuss signs and symptoms of neurogenic shock and spinal shock.
38. Describe the process of providing emergency medical care to a patient with a spinal injury, including the implications of not properly caring for patients with injuries of this nature, and the steps for performing manual in-line stabilization, including immobilizing a supine patient, a seated patient, and a standing patient.
39. Discuss when rapid extrication should be performed, and how to perform it.
40. Discuss how to package and remove a patient who is found in the water with a potential spinal injury.
41. Explain the different circumstances in which a helmet should be either left on or taken off a patient with a possible head or spinal injury, and then list the steps paramedics must follow to remove a helmet, including the alternate method for removing a football helmet.
42. Describe prehospital pharmacologic treatment of patients with spinal cord injury
43. Discuss complications of spinal cord injury, including prehospital management of autonomic dysreflexia.
44. Discuss nontraumatic spinal conditions, including causes of low back pain and prehospital treatment.

1. Describe risk factors related to cardiovascular disease.
2. Review the anatomy and physiology of the chest.
3. Understand the mechanics of ventilation in relation to chest trauma.
4. Describe the assessment process for patients with chest trauma.
5. Discuss the significance of various signs and symptoms of chest trauma, including changes in pulse rate, dyspnea, jugular vein distention, muffled heart sounds, changes in blood pressure, diaphoresis or changes in pallor, hemoptysis, and changes in mental status.
6. Discuss the emergency medical care of a patient with chest trauma.
7. Discuss the pathophysiology, assessment, and management of chest wall injuries, including flail chest, rib fractures, sternal fractures, and clavicle fractures.
8. Discuss the pathophysiology, assessment, and management of lung injuries, including simple pneumothorax, open pneumothorax, tension pneumothorax, hemothorax, and pulmonary contusion.
9. Discuss the pathophysiology, assessment, and management of myocardial injuries, including cardiac tamponade, myocardial contusion, myocardial rupture, and commotio cordis.
10. Discuss the pathophysiology, assessment, and management of vascular injuries, including traumatic aortic disruption and penetrating wounds of the great vessels.
11. Discuss the pathophysiology, assessment, and management of other chest injuries, including diaphragmatic injury, esophageal injury, tracheobronchial injuries, and traumatic asphyxia.
45. Describe the anatomy and physiology of the abdomen, including an explanation of abdominal quadrants and boundaries.
46. List the vascular structures contained in the abdomen.
47. Discuss the solid and hollow organs of the abdomen.
48. Describe the anatomy and physiology of the female and male genitourinary systems, and distinguish between hollow and solid organs.
49. Define and discuss closed abdominal injuries, providing examples of the mechanisms of injury that are likely to cause this type of trauma in a patient.
50. Define and discuss open abdominal injuries, including ways to distinguish low-velocity, medium-velocity, and high-velocity injuries, and provide examples of the mechanisms of injury that would cause each.
51. Discuss the assessment of a patient who has experienced an abdominal or genitourinary injury.
52. Discuss special considerations related to patient privacy when assessing a patient with a genitourinary injury.
53. Discuss the emergency medical care of a patient who has sustained a closed abdominal injury.
54. Discuss the emergency medical care of a patient who has sustained an open abdominal injury, including penetrating injuries and abdominal evisceration.
55. Describe the different ways solid organs of the abdomen, including the liver, spleen, pancreas, and diaphragm can be injured, and list the signs and symptoms a patient might exhibit depending on the organ(s) involved.
56. Describe the different ways hollow organs of the abdomen, including the small intestine, large intestine, and stomach can be injured, and list the signs and symptoms a patient might exhibit depending on the organ involved.
57. Describe how retroperitoneal injuries can occur, and the signs and symptoms associated with these.
58. Discuss abdominal vascular injuries, and the signs and symptoms associated with these.
59. Describe duodenal injury, and the signs and symptoms associated with it.

60. Discuss the types of traumatic injuries that may be sustained by the organs of the male and female genitourinary systems, including the kidneys, urinary bladder, ureters, urethra, and internal and external genitalia.
61. Discuss the assessment and emergency medical care of a patient who has sustained a genitourinary injury related to the kidneys, urinary bladder, ureters, urethra, and internal and external genitalia.
 1. Describe the incidence, morbidity, and mortality of musculoskeletal injuries.
 2. Discuss the anatomy and physiology of the musculoskeletal system.
 3. Predict injuries based on the mechanism of injury, including:
 - a. Direct
 - b. Indirect
 - c. Pathologic
 4. Describe age-associated changes in the bones.
 5. Discuss the general pathophysiology of musculoskeletal injuries, including fractures, ligament injuries, dislocations, muscle injuries, tendon injuries, and injuries that may signify fractures.
 6. Discuss fracture classifications, including linear, transverse, oblique, spiral, impacted, comminuted, segmental, complete, incomplete, nondisplaced, and displaced.
 7. Discuss the pathophysiology of open versus closed fractures.
 8. Discuss the signs and symptoms of a fracture.
 9. Describe the process of assessing a patient with a musculoskeletal injury.
 10. Discuss the assessment findings associated with musculoskeletal injuries.
 11. List the six “P”s of musculoskeletal injury assessment.
 12. List the primary signs and symptoms that can indicate less obvious extremity injury.
 13. List the other signs and symptoms that can indicate less obvious extremity injury.
 14. Discuss the need for assessment of pulses, motor, and sensation before and after splinting.
 15. Identify the need for rapid intervention and transport when dealing with musculoskeletal injuries.
 16. Discuss the general emergency care principles used in managing musculoskeletal injuries.
 17. Discuss the relationship between volume of hemorrhage and open or closed fractures.
 18. Discuss methods of pain control for a patient with a musculoskeletal injury
 19. Discuss the general guidelines of splinting.
 20. Discuss the pathophysiology, assessment, and management of complications of musculoskeletal injuries, including vascular injuries, neurovascular injuries, compartment syndrome, crush injuries, and thromboembolic disease.
 21. Discuss the pathophysiology, assessment, and management of specific fractures, including shoulder girdle fractures, midshaft humerus fractures, elbow fractures, forearm fractures, wrist and hand fractures, pelvic fractures, hip fractures, femoral shaft fractures, knee fractures, tibia and fibula fractures, ankle fractures, and calcaneus fractures.
 22. Describe the special considerations involved in femur fracture management.
 23. Discuss the pathophysiology, assessment, and management of pediatric fractures.
 24. Discuss the pathophysiology, assessment, and management of specific joint injuries and dislocations, including those to the shoulder girdle, elbow, wrist and hand, finger, hip, and knee.
 25. Explain the importance of manipulating a knee dislocation or fracture with an absent distal pulse.
 26. Describe the procedure for reduction of a shoulder, finger, or ankle dislocation or fracture.

27. Discuss the pathophysiology, assessment, and management of bony abnormalities, including osteomyelitis and tumors.
28. Discuss the pathophysiology, assessment, and management of disorders of the spine, including cauda equina syndrome.
29. Discuss the pathophysiology, assessment, and management of joint abnormalities, including arthritis, septic arthritis, gout, rheumatoid arthritis, and osteoarthritis.
30. Discuss the pathophysiology, assessment, and management of muscle abnormalities, including myalgia and myositis.
31. Discuss the pathophysiology, assessment, and management of overuse injuries, including tendinitis, bursitis, carpal tunnel syndrome, and polyneuropathy.
32. Discuss the pathophysiology, assessment, and management of soft-tissue infections, including fasciitis, gangrene, paronychia, and flexor tenosynovitis of the hand

Affective-

1. Defend the rationale explaining why immediate life-threats must take priority over wound closure.
2. Defend the management regimens for various soft tissue injuries.
3. Defend why immediate life-threatening conditions take priority over soft tissue management.
4. Value the importance of a thorough assessment for patients with soft tissue injuries.
5. Attend to the feelings that the patient with a soft tissue injury may experience.
6. Appreciate the importance of good follow-up care for patients receiving sutures.
7. Understand the value of the written report for soft tissue injuries, in the continuum of patient care.
8. Value the changes of a patient's self-image associated with a burn injury.
9. Value the impact of managing a burn injured patient.
10. Advocate empathy for a burn injured patient.
11. Assess safety at a burn injury incident.
12. Characterize mortality and morbidity based on the pathophysiology and assessment findings of a patient with a burn injury.
13. Value and defend the sense of urgency in burn injuries.
14. Serve as a model for universal precautions and body substance isolation (BSI).
15. Advocate the use of a thorough assessment when determining the proper management modality for spine injuries.
16. Value the implications of failing to properly immobilize a spine injured patient.
17. Advocate the use of a thorough assessment to determine a differential diagnosis and treatment plan for thoracic trauma.
18. Advocate the use of a thorough scene survey to determine the forces involved in thoracic trauma.
19. Value the implications of failing to properly diagnose thoracic trauma.
20. Value the implications of failing to initiate timely interventions to patients with thoracic trauma.
21. Advocate the use of a thorough assessment to determine a differential diagnosis and treatment plan for abdominal trauma.
22. Advocate the use of a thorough scene survey to determine the forces involved in abdominal trauma.

23. Value the implications of failing to properly diagnose abdominal trauma and initiate timely interventions to patients with abdominal trauma.
24. Advocate the use of a thorough assessment to determine a working diagnosis and treatment plan for musculoskeletal injuries.
25. Advocate for the use of pain management in the treatment of musculoskeletal injuries.
26. Defend the need to oxygenate and ventilate a patient.
27. Defend the necessity of establishing and/ or maintaining patency of a patient=s airway.
28. Comply with standard precautions to defend against infectious and communicable diseases.

Overview of Semester Class Schedule:

	NRPM 101	NRPM 102	NRPM 102L	NPRM 103	NRPM 104	NRPM 104L	NRPM 106	NRPM 106L	Total hrs/day
WEEK #									
1	5				2.5	0.83			8.33
2	5				2.5	0.83			8.33
3	5				2.5	0.83			8.33
4	5				2.5	0.83			8.33
5		2	3		2.5	0.83			8.33
6		2	3		2.5	0.83			8.33
7		2	3		2.5	0.83			8.33
8		2	3		2.5	0.83			8.33
9		2	3		2.5	0.83			8.33
10				2.2	2.5	0.83	1.2	1.6	8.33
11				2.2	2.5	0.83	1.2	1.6	8.33
12				2.2	2.5	0.83	1.2	1.6	8.33
13				2.2	2.5	0.83	1.2	1.6	8.33
14				2.2	2.5	0.83	1.2	1.6	8.33
15				2	2.5	0.83	1.4	1.6	8.33
16				2	2.5	0.85	2	1	8.35
17				2	2.5	0.85	1	2	8.35
18				2	2.5	0.85	0.6	2.4	8.35
	20	10	15	19	45	15	11	15	150

		Classes will meet on Tuesdays	
Course Legend:			
	Req. Hrs:	Start Time	End Time
NRPM 101: Introduction to Emergency Medical Care	20	1300	1800
NRPM 102: Medical Math and Pharmacological Principles	10	1300	1500
NRPM 102L: Pharmacological Techniques	15	1500	1800
NRPM 103: Introduction to Clinical Medicine & Assessment	19	1300	1515
NRPM 104: Anatomy & Physiology for Emergency Medical Care	45	900	1130
NRPM 104L: Anatomy & Physiology for Emergency Medical Care Lab	15	1130	1230
NRPM 106: Airway and Injury Management in the Field	11	1515	1630
NRPM 106L: Airway and Injury Management in the Field Lab	15	1630	1800
	150		