# COWLEY COLLEGE
## & Area Vocational Technical School

**COURSE PROCEDURE FOR**

**Paramedic 1**
**EMS5681 12 Credit Hours**

**Student Level:**
This course is open to students on the college level in either the freshman or sophomore year.

**Catalog Description:**

**EMS5681 – Paramedic 1 (12 hrs)**
This course provides students with an understanding of airway management, patient assessment, preparatory EMS topics, anatomy and physiology, pathophysiology, pharmacology, medication administration, EMS research and medical terminology. This is the first course of the paramedic technical curriculum and helps prepare the student for progression through the program. The student will develop competencies in the application of the principles of pre-hospital emergency care, anatomy and physiology, and pharmacology. Patient assessment, airway management, and pharmacological skills will be developed and improved so that the student can successfully care for a patient.

**Prerequisites:**
BIO4150 Anatomy and Physiology, ENG2211 Composition 1, ENG 2212 Composition 2, NCH6214 Paramedic Preparation and student selected to enter the paramedic program.

At the start of the course, each student will be required to have a background check and urinalysis completed.

**Controlling Purpose:**
This course provides students with an understanding of airway management, patient assessment, preparatory EMS topics, anatomy and physiology, pathophysiology, pharmacology, medication administration, EMS research and medical terminology. This is the first course of the paramedic technical curriculum and helps prepare the student for progression through the program.

**Learner Outcomes:**
The student will develop competencies in the application of the principles of pre-hospital emergency care, anatomy and physiology, and pharmacology. Patient assessment, airway management, and pharmacological skills will be developed and improved so that the student can successfully care for a patient.

**Units Outcomes and Criterion Based Evaluation Key for Core Content:**
The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:
A = All major and minor goals have been achieved and the achievement level is

considerably above the minimum required for doing more advanced work in the same field.

B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.

C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.

D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.

F = Failing, will be computed in GPA and hours attempted.

N = No instruction or training in this area.

**Specific Competencies to be Developed**

## Unit 1: Introduction to Advanced Pre-Hospital Care

**Unit Objective: At the conclusion of this unit, the paramedic student will identify attributes and characteristics of the paramedic, describe the relationship of the paramedic with other allied health care providers, explain elements of paramedic education and define the expanded scope of practice for the paramedic.**

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| | | | | | | Describe the relationship between the paramedic and other members of the allied health professions. |
| | | | | | | Identify the attributes and characteristics of the paramedic. |
| | | | | | | Explain the elements of paramedic education and practice that support its stature as a profession. |
| | | | | | | Define and give examples of the expanded scope of practice for the paramedic. |

## Unit 2: Roles and Responsibilities

**Unit Objective: At the completion of this unit, the paramedic student will understand his or her roles and responsibilities within an EMS system, and how these roles and responsibilities differ from other levels of providers.**

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| | | | | | | Describe the attributes of a paramedic as a health care professional. |
| | | | | | | Describe the recognized levels of EMS training/education, leading to licensure/certification in his or her state. |
| | | | | | | Explain paramedic licensure/certification, recertification, and reciprocity requirements in his or her state. . |

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| | | | | | | Evaluate the importance of maintaining one's paramedic license/certification |
| | | | | | | Describe the benefits of paramedic continuing education. |
| | | | | | | List current state requirements for paramedic education in his/her state. |
| | | | | | | Discuss current issues in his/her state impacting EMS. |
| | | | | | | Discuss the roles of various EMS standard setting agencies. |
| | | | | | | Describe how professionalism applies to the paramedic while on and off duty. |
| | | | | | | Describe examples of professional behaviors in the following areas: integrity, empathy, self-motivation, appearance and personal hygiene, self-confidence, communications, time management, teamwork and diplomacy, respect, patient advocacy, and careful delivery of service. |
| | | | | | | Provide examples of activities that constitute appropriate professional behavior for a paramedic. |
| | | | | | | Describe the importance of quality EMS research to the future of EMS. |
| | | | | | | Identify the benefits of paramedics teaching in their community. |
| | | | | | | Analyze how the paramedic can benefit the health care system by supporting primary care to patients in the out-of-hospital setting. |
| | | | | | | List the primary and additional responsibilities of paramedics. |
| | | | | | | Provide examples of local protocols. |
| | | | | | | Analyze the role of continuous quality improvement with respect to continuing medical education and research. |
| | | | | | | Define the role of the paramedic relative to the safety of the crew, the patient, and bystanders. |
| | | | | | | Identify local health care agencies and transportation resources for patients with special needs. |
| | | | | | | Describe the role of the paramedic in health education activities related to illness and injury prevention. |
| | | | | | | Describe the importance and benefits of research. |
| | | | | | | Explain the EMS provider's role in data collection. |
| | | | | | | Explain the basic principles of research. |
| | | | | | | Describe a process of evaluating and interpreting research. |
| | | | | | | Assess personal practices relative to the responsibility for personal safety, the safety of the crew, the patient, and bystanders. |
| | | | | | | Serve as a role model for others relative to professionalism in EMS. |

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| | | | | | | Value the need to serve as the patient advocate inclusive of those with special needs, alternative life styles and cultural diversity. |
| | | | | | | Defend the importance of continuing medical education and skills retention. |
| | | | | | | Advocate the need for supporting and participating in research efforts aimed at improving EMS systems. |
| | | | | | | Assess personal attitudes and demeanor that may distract from professionalism. |
| | | | | | | Value the role that family dynamics plays in the total care of patients. |
| | | | | | | Advocate the need for injury prevention, including abusive situations. |
| | | | | | | Exhibit professional behaviors in the following areas: integrity, empathy, self-motivation, appearance and personal hygiene, self-confidence, communications, time management, teamwork and diplomacy, respect, patient advocacy, and careful delivery of service. |
| **Unit 3: The Well Being of the Paramedic**<br>**Unit Objective: At the completion of this unit, the paramedic student will understand and value the importance of personal wellness in EMS and serve as a healthy role model for peers.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Discuss the concept of wellness and its benefits. |
| | | | | | | Define the components of wellness. |
| | | | | | | Describe the role of the paramedic in promoting wellness. |
| | | | | | | Discuss the components of wellness associated with proper nutrition. |
| | | | | | | List principles of weight control. |
| | | | | | | Discuss how cardiovascular endurance, muscle strength, and flexibility contribute to physical fitness. |
| | | | | | | Describe the impact of shift work on circadian rhythms. |
| | | | | | | Discuss how periodic risk assessments and knowledge of warning signs contribute to cancer and cardiovascular disease prevention. |
| | | | | | | Differentiate proper from improper body mechanics for lifting and moving patients in emergency and non-emergency situations. |
| | | | | | | Describe the problems that a paramedic might encounter in a hostile situation and the techniques used to manage the situation. |
| | | | | | | Given a scenario involving arrival at the scene of a motor vehicle collision, assess the safety of the scene and propose ways to make the scene safer. |
| | | | | | | List factors that contribute to safe vehicle operations. |

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| | | | | | | Describe the equipment available for self-protection when confronted with a variety of adverse situations. |
| | | | | | | Describe the benefits and methods of smoking cessation. |
| | | | | | | Describe the three phases of the stress response. |
| | | | | | | List factors that trigger the stress response. |
| | | | | | | Differentiate between normal/healthy and detrimental reactions to anxiety and stress. |
| | | | | | | Describe the common physiological and psychological effects of stress. |
| | | | | | | Identify causes of stress in EMS. |
| | | | | | | Describe behavior that is a manifestation of stress in patients and those close to them and how these relate to paramedic stress. |
| | | | | | | Identify and describe the defense mechanisms and management techniques commonly used to deal with stress. |
| | | | | | | Describe the components of critical incident stress management (CISM). |
| | | | | | | Provide examples of situations in which CISM would likely be beneficial to paramedics. |
| | | | | | | Given a scenario involving a stressful situation, formulate a strategy to help cope with the stress. |
| | | | | | | Describe the stages of the grieving process (Kubler-Ross). |
| | | | | | | Describe the needs of the paramedic when dealing with death and dying. |
| | | | | | | Describe the unique challenges for paramedics in dealing with the needs of children and other special populations related to their understanding or experience of death and dying. |
| | | | | | | Discuss the importance of universal precautions and body substance isolation practices. |
| | | | | | | Describe the steps to take for personal protection from airborne and bloodborne pathogens. |
| | | | | | | Given a scenario in which equipment and supplies have been exposed to body substances, plan for the proper cleaning, disinfection, and disposal of the items. |
| | | | | | | Explain what is meant by an exposure and describe principles for management. |
| | | | | | | Advocate the benefits of working toward the goal of total personal wellness. |
| | | | | | | Serve as a role model for other EMS providers in regard to a total wellness lifestyle. |
| | | | | | | Value the need to assess his/her own lifestyle. |

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| | | | | | | Challenge his/herself to each wellness concept in his/her role as a paramedic. |
| | | | | | | Defend the need to treat each patient as an individual, with respect and dignity. |
| | | | | | | Assess his/her own prejudices related to the various aspects of cultural diversity. |
| | | | | | | Improve personal physical well-being through achieving and maintaining proper body weight, regular exercise and proper nutrition. |
| | | | | | | Promote and practice stress management techniques. |
| | | | | | | Defend the need to respect the emotional needs of dying patients and their families. |
| | | | | | | Advocate and practice the use of personal safety precautions in all scene situations. |
| | | | | | | Advocate and serve as a role model for other EMS providers relative to body substance isolation practices. |
| | | | | | | Demonstrate safe methods for lifting and moving patients in emergency and non-emergency situations. |
| | | | | | | Demonstrate the proper procedures to take for personal protection from disease. |

## Unit 4: Illness and Injury Prevention

**Unit Objective: At the completion of this unit, the paramedic student will be able to integrate the implementation of primary injury prevention activities as an effective way to reduce death, disabilities and health care costs.**

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| | | | | | | Describe the incidence, morbidity and mortality of unintentional and alleged unintentional events. |
| | | | | | | Identify the human, environmental, and socioeconomic impact of unintentional and alleged unintentional events. |
| | | | | | | Identify health hazards and potential crime areas within the community. |
| | | | | | | Identify local municipal and community resources available for physical, socioeconomic crises. |
| | | | | | | List the general and specific environmental parameters that should be inspected to assess a patient's need for preventative information and direction. |
| | | | | | | Identify the role of EMS in local municipal and community prevention programs. |
| | | | | | | Identify the local prevention programs that promote safety for all age populations. |
| | | | | | | Identify patient situations where the paramedic can intervene in a preventative manner. |
| | | | | | | Document primary and secondary injury prevention data. |
| | | | | | | Value and defend tenets of prevention in terms of personal safety and wellness. |
| | | | | | | Value and defend tenets of prevention for patients and communities being served. |
| | | | | | | Value the contribution of effective documentation as one justification for funding of prevention programs. |

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| | | | | | | Value personal commitment to success of prevention programs. |
| | | | | | | Demonstrate the use of protective equipment appropriate to the environment and scene. |
| **Unit 5: EMS Systems**<br>**Unit Objective: Describe the key historical events, national groups important to EMS, standard components of an EMS system, the role of the Medical Director and the components and benefits of quality improvement.** | | | | | | |
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| | | | | | | Describe key historical events that influenced the development of national Emergency Medical Services (EMS) systems. |
| | | | | | | Identify national groups important to the development, education, and implementation of EMS. |
| | | | | | | Differentiate among the four nationally recognized levels of EMS training/education, leading to licensure/certification/registration. |
| | | | | | | Identify the standards (components) of an EMS System as defined by the National Highway Traffic Safety Administration. |
| | | | | | | Discuss the role of national associations and of a national registry agency. |
| | | | | | | Describe what is meant by "citizen involvement in the EMS system." |
| | | | | | | Describe the role of the EMS physician in providing medical direction. |
| | | | | | | Discuss pre-hospital and out-of-hospital care as an extension of the physician. |
| | | | | | | Describe the benefits of medical direction, both on-line and off-line. |
| | | | | | | Describe the process for the development of local policies and protocols. |
| | | | | | | Describe the relationship between a physician on the scene, the paramedic on the scene, and the EMS physician providing on-line medical direction. |
| | | | | | | Describe the components of continuous quality improvement. |
| | | | | | | Define the following terms:<br>a. EMS Systems<br>b. Licensure<br>c. Certification<br>d. Registration<br>e. Profession<br>f. Professionalism<br>g. Health care professional<br>h. Ethics<br>i. Peer review<br>j. Medical direction |

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| | | | | | | k. Protocols |
| **Unit 6: Medicolegal Issues**<br>**Unit Objective: At the completion of this unit, the paramedic student will understand the legal issues that impact decisions made in the out-of-hospital environment.** | | | | | | |
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| | | | | | | Differentiate between legal and ethical responsibilities. |
| | | | | | | Describe the basic structure of the legal system in the United States. |
| | | | | | | Differentiate between civil and criminal law as it pertains to the paramedic. |
| | | | | | | Identify and explain the importance of laws pertinent to the paramedic. |
| | | | | | | Differentiate between licensure and certification as they apply to the paramedic. |
| | | | | | | List the specific problems or conditions encountered while providing care that a paramedic is required to report, and identify in each instance to whom the report is to be made. |
| | | | | | | Define the following terms:<br>a. Abandonment<br>b. Advance directives<br>c. Assault<br>d. Battery<br>e. Breach of duty<br>f. Confidentiality<br>g. Consent (expressed, implied, informed, involuntary)<br>h. Do not resuscitate (DNR) orders<br>i. Duty to act<br>j. Emancipated minor<br>k. False imprisonment<br>l. Immunity<br>m. Liability<br>n. Libel<br>o. Minor<br>p. Negligence<br>q. Proximate cause<br>r. Scope of practice<br>s. Slander<br>t. Standard of care<br>u. Tort |
| | | | | | | Differentiate between the scope of practice and the standard of care for paramedic practice. |
| | | | | | | Discuss the concept of medical direction, including off-line medical direction and on-line medical direction, and its relationship to the standard of care of a paramedic. |

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| | | | | | | Describe the four elements that must be present in order to prove negligence. |
| | | | | | | Given a scenario in which a patient is injured while a paramedic is providing care, determine whether the four components of negligence are present. |
| | | | | | | Given a scenario, demonstrate patient care behaviors that would protect the paramedic from claims of negligence. |
| | | | | | | Explain the concept of liability as it might apply to paramedic practice, including physicians providing medical direction and paramedic supervision of other care providers. |
| | | | | | | Discuss the legal concept of immunity, including Good Samaritan statutes and governmental immunity, as it applies to the paramedic. |
| | | | | | | Explain the importance and necessity of patient confidentiality and the standards for maintaining patient confidentiality that apply to the paramedic. |
| | | | | | | Differentiate among expressed, informed, implied, and involuntary consent. |
| | | | | | | Given a scenario in which a paramedic is presented with a conscious patient in need of care, describe the process used to obtain consent. |
| | | | | | | Identify the steps to take if a patient refuses care. |
| | | | | | | Given a scenario, demonstrate appropriate patient management and care techniques in a refusal of care situation. |
| | | | | | | Describe what constitutes abandonment. |
| | | | | | | Identify the legal issues involved in the decision not to transport a patient, or to reduce the level of care being provided during transportation. |
| | | | | | | Describe how hospitals are selected to receive patients based on patient need and hospital capability and the role of the paramedic in such selection. |
| | | | | | | Differentiate between assault and battery and describe how to avoid each. |
| | | | | | | Describe the conditions under which the use of force, including restraint, is acceptable. |
| | | | | | | Explain the purpose of advance directives relative to patient care and how the paramedic should care for a patient who is covered by an advance directive. |
| | | | | | | Discuss the responsibilities of the paramedic relative to resuscitation efforts for patients who are potential organ donors. |
| | | | | | | Describe the actions that the paramedic should take to preserve evidence at a crime or accident scene. |
| | | | | | | Describe the importance of providing accurate documentation (oral and written) in substantiating an incident. |
| | | | | | | Describe the characteristics of a patient care report required to make it an effective |

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| | | | | | | legal document. |
| | | | | | | Given a scenario, prepare a patient care report, including an appropriately detailed narrative. |
| | | | | | | Advocate the need to show respect for the rights and feelings of patients. |
| | | | | | | Assess his/her personal commitment to protecting patient confidentiality. |
| | | | | | | Given a scenario involving a new employee, explain the importance of obtaining consent for adults and minors. |
| | | | | | | Defend personal beliefs about withholding or stopping patient care. |
| | | | | | | Defend the value of advance medical directives. |

## Unit 7: Ethics

**Unit Objective: At the completion of this unit, the paramedic student will understand the role that ethics plays in decision making in the out-of-hospital environment.**

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| | | | | | | Define ethics. |
| | | | | | | Distinguish between ethical and moral decisions. |
| | | | | | | Identify the premise that should underlie the paramedic's ethical decisions in out-of-hospital care. |
| | | | | | | Analyze the relationship between the law and ethics in EMS. |
| | | | | | | Compare and contrast the criteria that may be used in allocating scarce EMS resources. |
| | | | | | | Identify the issues surrounding the use of advance directives, in making a pre-hospital resuscitation decision. |
| | | | | | | Describe the criteria necessary to honor an advance directive in your state. |
| | | | | | | Value the patient's autonomy in the decision-making process. |
| | | | | | | Defend the following ethical positions:<br>The paramedic is accountable to the patient.<br>The paramedic is accountable to the medical director.<br>The paramedic is accountable to the EMS system.<br>The paramedic is accountable for fulfilling the standard of care. |
| | | | | | | Given a scenario, defend or challenge a paramedic's actions concerning a patient who is treated against his/her wishes. |
| | | | | | | Given a scenario, defend a paramedic's actions in a situation where a physician orders therapy the paramedic feels to be detrimental to the patient's best interests. |

## Unit 8: Therapeutic Communications

**Unit Objective: At the completion of this unit, the paramedic student will be able to integrate the principles of therapeutic communication to effectively communicate with any patient while providing care.**

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| | | | | | | Define communication. |
| | | | | | | Identify internal and external factors that affect a patient/bystander interview conducted by a paramedic. |
| | | | | | | Restate the strategies for developing patient rapport. |
| | | | | | | Provide examples of open-ended and closed or direct questions. |
| | | | | | | Discuss common errors made by paramedics when interviewing patients. |
| | | | | | | Identify the nonverbal skills that are used in patient interviewing. |
| | | | | | | Restate the strategies to obtain information from the patient. |
| | | | | | | Summarize the methods to assess mental status based on interview techniques. |
| | | | | | | Discuss the strategies for interviewing a patient who is unmotivated to talk. |
| | | | | | | Differentiate the strategies a paramedic uses when interviewing a patient who is hostile compared to one who is cooperative. |
| | | | | | | Summarize developmental considerations of various age groups that influence patient interviewing. |
| | | | | | | Restate unique interviewing techniques necessary to employ with patients who have special needs. |
| | | | | | | Discuss interviewing considerations used by paramedics in cross-cultural communications. |
| | | | | | | Serve as a model for an effective communication process. |
| | | | | | | Advocate the importance of external factors of communication. |
| | | | | | | Promote proper responses to patient communication. |
| | | | | | | Exhibit professional non-verbal behaviors. |
| | | | | | | Advocate development of proper patient rapport. |
| | | | | | | Value strategies to obtain patient information. |
| | | | | | | Exhibit professional behaviors in communicating with patients in special situations. |
| | | | | | | Exhibit professional behaviors in communication with patient form different cultures. |

## Unit 9: Patient Assessment -- History Taking

**Unit Objective: At the completion of this unit, the paramedic student will be able to use the appropriate techniques to obtain a medical history from a patient.**

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| | | | | | | Describe the techniques of history taking. |
| | | | | | | Discuss the importance of using open ended questions. |
| | | | | | | Describe the use of facilitation, reflection, clarification, empathetic responses, confrontation, and interpretation. |
| | | | | | | Differentiate between facilitation, reflection, clarification, sympathetic responses, confrontation, and interpretation. |
| | | | | | | Describe the structure and purpose of a health history. |
| | | | | | | Describe how to obtain a comprehensive health history. |
| | | | | | | List the components of a comprehensive history of an adult patient. |
| | | | | | | Demonstrate the importance of empathy when obtaining a health history. |
| | | | | | | Demonstrate the importance of confidentiality when obtaining a health history. |

## Unit 10: Patient Assessment -- Techniques of Physical Examination

**Unit Objective: At the completion end of this unit, the paramedic student will be able to explain the pathophysiological significance of physical exam findings.**

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| | | | | | | Define the terms inspection, palpation, percussion, auscultation. |
| | | | | | | Describe the techniques of inspection, palpation, percussion, and auscultation. |
| | | | | | | Describe the evaluation of mental status. |
| | | | | | | Evaluate the importance of a general survey. |
| | | | | | | Describe the examination of skin, hair and nails. |
| | | | | | | Differentiate normal and abnormal findings of the assessment of the skin. |
| | | | | | | Distinguish the importance of abnormal findings of the assessment of the skin. |
| | | | | | | Describe the examination of the head and neck. |
| | | | | | | Differentiate normal and abnormal findings of the scalp examination. |
| | | | | | | Describe the normal and abnormal assessment findings of the skull. |
| | | | | | | Describe the assessment of visual acuity. |
| | | | | | | Explain the rationale for the use of an ophthalmoscope. |

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| | | | | | | Describe the examination of the eyes. |
| | | | | | | Distinguish between normal and abnormal assessment findings of the eyes. |
| | | | | | | Explain the rationale for the use of an otoscope. |
| | | | | | | Describe the examination of the ears. |
| | | | | | | Differentiate normal and abnormal assessment findings of the ears. |
| | | | | | | Describe the examination of the nose. |
| | | | | | | Differentiate normal and abnormal assessment findings of the nose. |
| | | | | | | Describe the examination of the mouth and pharynx. |
| | | | | | | Differentiate normal and abnormal assessment findings of the mouth and pharynx. |
| | | | | | | Describe the examination of the neck. |
| | | | | | | Differentiate normal and abnormal assessment findings the neck. |
| | | | | | | Describe the survey of the thorax and respiration. |
| | | | | | | Describe the examination of the posterior chest. |
| | | | | | | Describe percussion of the chest. |
| | | | | | | Differentiate the percussion notes and their characteristics. |
| | | | | | | Differentiate the characteristics of breath sounds. |
| | | | | | | Describe the examination of the anterior chest. |
| | | | | | | Differentiate normal and abnormal assessment findings of the chest examination. |
| | | | | | | Describe special examination techniques related to the assessment of the chest. |
| | | | | | | Describe the examination of the arterial pulse including rate, rhythm, and amplitude. |
| | | | | | | Distinguish normal and abnormal findings of arterial pulse. |
| | | | | | | Describe the assessment of jugular venous pressure and pulsations. |
| | | | | | | Distinguish normal and abnormal examination findings of jugular venous pressure and pulsations. |
| | | | | | | Describe the examination of the heart and blood vessels. |
| | | | | | | Differentiate normal and abnormal assessment findings of the heart and blood vessels. |
| | | | | | | Describe the auscultation of the heart. |
| | | | | | | Differentiate the characteristics of normal and abnormal findings associated with the auscultation of the heart. |

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| | | | | | | Describe special examination techniques of the cardiovascular examination. |
| | | | | | | Identify the components of physical assessment as they relate to the hematologic system. |
| | | | | | | Integrate pathophysiological principles into the assessment of a patient with hematologic disease. |
| | | | | | | Describe the examination of the abdomen. |
| | | | | | | Differentiate normal and abnormal assessment findings of the abdomen. |
| | | | | | | Describe auscultation of the abdomen. |
| | | | | | | Distinguish normal and abnormal findings of the auscultation of the abdomen. |
| | | | | | | Describe the examination of the female genitalia. |
| | | | | | | Differentiate normal and abnormal assessment findings of the female genitalia. |
| | | | | | | Describe the examination of the male genitalia. |
| | | | | | | Differentiate normal and abnormal findings of the male genitalia. |
| | | | | | | Describe the examination of the anus and rectum. |
| | | | | | | Distinguish between normal and abnormal findings of the anus and rectum. |
| | | | | | | Describe the examination of the peripheral vascular system. |
| | | | | | | Differentiate normal and abnormal findings of the peripheral vascular system. |
| | | | | | | Describe the examination of the musculoskeletal system. |
| | | | | | | Differentiate normal and abnormal findings of the musculoskeletal system. |
| | | | | | | Describe the examination of the nervous system. |
| | | | | | | Differentiate normal and abnormal findings of the nervous system. |
| | | | | | | Describe the assessment of the cranial nerves. |
| | | | | | | Differentiate normal and abnormal findings of the cranial nerves. |
| | | | | | | Describe the general guidelines of recording examination information. |
| | | | | | | Discuss the considerations of examination of an infant or child. |
| | | | | | | Demonstrate a caring attitude when performing physical examination skills. |
| | | | | | | Discuss the importance of a professional appearance and demeanor when performing physical examination skills. |
| | | | | | | Value the sense of urgency for initial assessment and interventions for patients with hematologic crises. |
| | | | | | | Appreciate the limitations of conducting a physical exam in the out-of-hospital |

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| | | | | | | environment. |
| | | | | | | Demonstrate the examination of skin, hair and nails. |
| | | | | | | Demonstrate the examination of the head and neck. |
| | | | | | | Demonstrate the examination of the eyes. |
| | | | | | | Demonstrate the examination of the ears. |
| | | | | | | Demonstrate the assessment of visual acuity. |
| | | | | | | Demonstrate the examination of the nose. |
| | | | | | | Demonstrate the examination of the mouth and pharynx. |
| | | | | | | Demonstrate the examination of the neck. |
| | | | | | | Demonstrate the examination of the thorax and ventilation. |
| | | | | | | Demonstrate the examination of the posterior chest. |
| | | | | | | Demonstrate auscultation of the chest. |
| | | | | | | Demonstrate percussion of the chest. |
| | | | | | | Demonstrate the examination of the anterior chest. |
| | | | | | | Demonstrate special examination techniques related to the assessment of the chest. |
| | | | | | | Demonstrate the examination of the arterial pulse including location, rate, rhythm, and amplitude. |
| | | | | | | Demonstrate the assessment of jugular venous pressure and pulsations. |
| | | | | | | Demonstrate the examination of the heart and blood vessels. |
| | | | | | | Demonstrate special examination techniques of the cardiovascular examination. |
| | | | | | | Perform an assessment of the patient with hematologic disorder. |
| | | | | | | Demonstrate the examination of the abdomen. |
| | | | | | | Demonstrate auscultation of the abdomen. |
| | | | | | | Demonstrate the external visual examination of the female genitalia. |
| | | | | | | Demonstrate the examination of the male genitalia. |
| | | | | | | Demonstrate the examination of the peripheral vascular system. |
| | | | | | | Demonstrate the examination of the musculoskeletal system. |
| | | | | | | Demonstrate the examination of the nervous system. |

## Unit 11: Patient Assessment

**Unit Objective: At the end of this unit, the paramedic student will be able to integrate the principles of**

| history taking and techniques of physical exam to perform a patient assessment. | | | | | | |
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| | | | | | | Recognize hazards/potential hazards. |
| | | | | | | Describe common hazards found at the scene of a trauma and a medical patient. |
| | | | | | | Determine hazards found at the scene of a medical or trauma patient. |
| | | | | | | Differentiate safe from unsafe scenes. |
| | | | | | | Describe methods to making an unsafe scene safe. |
| | | | | | | Discuss common mechanisms of injury/nature of illness. |
| | | | | | | Predict patterns of injury based on mechanism of injury. |
| | | | | | | Discuss the reason for identifying the total number of patients at the scene. |
| | | | | | | Organize the management of a scene following size-up. |
| | | | | | | Explain the reasons for identifying the need for additional help or assistance. |
| | | | | | | Summarize the reasons for forming a general impression of the patient. |
| | | | | | | Discuss methods of assessing mental status. |
| | | | | | | Categorize levels of consciousness in the adult, infant and child. |
| | | | | | | Differentiate between assessing the altered mental status in the adult, child and infant patient. |
| | | | | | | Discuss methods of assessing the airway in the adult, child and infant patient. |
| | | | | | | State reasons for management of the cervical spine once the patient has been determined to be a trauma patient. |
| | | | | | | Analyze a scene to determine if spinal precautions are required. |
| | | | | | | Describe methods used for assessing if a patient is breathing. |
| | | | | | | Differentiate between a patient with adequate and inadequate minute ventilation. |
| | | | | | | Distinguish between methods of assessing breathing in the adult, child and infant patient. |
| | | | | | | Compare the methods of providing airway care to the adult, child and infant patient. |
| | | | | | | Describe the methods used to locate and assess a pulse. |
| | | | | | | Differentiate between locating and assessing a pulse in an adult, child and infant patient. |
| | | | | | | Discuss the need for assessing the patient for external bleeding. |
| | | | | | | Identify the components of physical assessment as they relate to the hematologic |

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| | | | | | | system. |
| | | | | | | Describe normal and abnormal findings when assessing skin color. |
| | | | | | | Describe normal and abnormal findings when assessing skin temperature. |
| | | | | | | Describe normal and abnormal findings when assessing skin condition. |
| | | | | | | Explain the reason for prioritizing a patient for care and transport. |
| | | | | | | Identify patients who require expeditious transport. |
| | | | | | | Describe the evaluation of patient's perfusion status based on findings in the initial assessment. |
| | | | | | | Describe orthostatic vital signs and evaluate their usefulness in assessing a patient in shock. |
| | | | | | | Apply the techniques of physical examination to the medical patient. |
| | | | | | | Differentiate between the assessment that is performed for a patient who is unresponsive or has an altered mental status and other medical patients requiring assessment. |
| | | | | | | Discuss the reasons for reconsidering the mechanism of injury. |
| | | | | | | State the reasons for performing a rapid trauma assessment. |
| | | | | | | Recite examples and explain why patients should receive a rapid trauma assessment. |
| | | | | | | Apply the techniques of physical examination to the trauma patient. |
| | | | | | | Describe the areas included in the rapid trauma assessment and discuss what should be evaluated. |
| | | | | | | Differentiate cases when the rapid assessment may be altered in order to provide patient care. |
| | | | | | | Discuss the reason for performing a focused history and physical exam. |
| | | | | | | Describe when and why a detailed physical examination is necessary. |
| | | | | | | Discuss the components of the detailed physical exam in relation to the techniques of examination. |
| | | | | | | State the areas of the body that are evaluated during the detailed physical exam. |
| | | | | | | Explain what additional care should be provided while performing the detailed physical exam. |
| | | | | | | Distinguish between the detailed physical exam that is performed on a trauma patient and that of the medical patient. |
| | | | | | | Differentiate patients requiring a detailed physical exam from those who do not. |
| | | | | | | Discuss the reasons for repeating the initial assessment as part of the on-going |

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| | | | | | | assessment. |
| | | | | | | Describe the components of the on-going assessment. |
| | | | | | | Describe trending of assessment components. |
| | | | | | | Discuss medical identification devices/systems. |
| | | | | | | Describe the rapid pediatric cardiopulmonary assessment. |
| | | | | | | Explain the rationale for crew members to evaluate scene safety prior to entering. |
| | | | | | | Serve as a model for others explaining how patient situations affect your evaluation of mechanism of injury or illness. |
| | | | | | | Explain the importance of forming a general impression of the patient. |
| | | | | | | Explain the value of performing an initial assessment. |
| | | | | | | Value the sense of urgency for initial assessment and interventions for patients with hematologic crises. |
| | | | | | | Demonstrate a caring attitude when performing an initial assessment. |
| | | | | | | Attend to the feelings that patients with medical conditions might be experiencing. |
| | | | | | | Value the need for maintaining a professional caring attitude when performing a focused history and physical examination. |
| | | | | | | Explain the rationale for the feelings that these patients might be experiencing. |
| | | | | | | Demonstrate a caring attitude when performing a detailed physical examination. |
| | | | | | | Explain the value of performing an on-going assessment. |
| | | | | | | Recognize and respect the feelings that patients might experience during assessment. |
| | | | | | | Explain the value of trending assessment components to other health professionals who assume care of the patient. |
| | | | | | | Observe various scenarios and identify potential hazards. |
| | | | | | | Demonstrate the scene-size-up. |
| | | | | | | Demonstrate the techniques for assessing mental status. |
| | | | | | | Demonstrate the techniques for assessing the airway. |
| | | | | | | Demonstrate the techniques for assessing if the patient is breathing. |
| | | | | | | Demonstrate the techniques for assessing if the patient has a pulse. |
| | | | | | | Demonstrate the techniques for assessing the patient for external bleeding. |
| | | | | | | Demonstrate the techniques for assessing the patient's skin color, temperature, and condition. |

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| | | | | | | Demonstrate the ability to prioritize patients. |
| | | | | | | Using the techniques of examination, demonstrate the assessment of a medical patient. |
| | | | | | | Demonstrate a rapid pediatric cardiopulmonary assessment. |
| | | | | | | Demonstrate the patient care skills that should be used to assist with a patient who is responsive with no known history. |
| | | | | | | Demonstrate the patient care skills that should be used to assist with a patient who is unresponsive or has an altered mental status. |
| | | | | | | Perform a rapid medical assessment. |
| | | | | | | Perform a focused history and physical exam of the medical patient. |
| | | | | | | Using the techniques of physical examination, demonstrate the assessment of a trauma patient. |
| | | | | | | Demonstrate the rapid trauma assessment used to assess a patient based on mechanism of injury. |
| | | | | | | Perform an assessment of the patient with hematologic disorder. |
| | | | | | | Perform a focused history and physical exam on a non-critically injured patient. |
| | | | | | | Perform a focused history and physical exam on a patient with life-threatening injuries. |
| | | | | | | Perform a detailed physical examination. |
| | | | | | | Demonstrate the skills involved in performing the on-going assessment. |
| **Unit 12: Clinical Decision Making**<br>**Unit Objective: At the end of this unit, the paramedic student will be able to apply a process of clinical decision making to use the assessment findings to help form a field impression.** | | | | | | |
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| | | | | | | Compare the factors influencing medical care in the out-of-hospital environment to other medical settings. |
| | | | | | | Differentiate between critical life-threatening, potentially life-threatening, and non life-threatening patient presentations. |
| | | | | | | Evaluate the benefits and shortfalls of protocols, standing orders and patient care algorithms. |
| | | | | | | Define the components, stages and sequences of the critical thinking process for paramedics. |
| | | | | | | Apply the fundamental elements of critical thinking for paramedics. |

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| | | | | | | Describe the effects of the “fight or flight” response and the positive and negative effects on a paramedic’s decision making. |
| | | | | | | Summarize the “six Rs” of putting it all together: Read the patient, Read the scene, React, Reevaluate, Revise the management plan, Review performance. |
| | | | | | | Defend the position that clinical decision making is the cornerstone of effective paramedic practice. |
| | | | | | | Practice facilitating behaviors when thinking under pressure. |

## Unit 13: EMS Communications

**Unit Objective: At the completion of this unit, the paramedic student will be able to follow an accepted format for dissemination of patient information in verbal form, either in person or over the radio.**

| A | B | C | D | F | N | |
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| | | | | | | Identify the importance of communications when providing EMS. |
| | | | | | | Identify the role of verbal, written, and electronic communications in the provision of EMS. |
| | | | | | | Describe the phases of communications necessary to complete a typical EMS event. |
| | | | | | | Identify the importance of proper terminology when communicating during an EMS event. |
| | | | | | | Identify the importance of proper verbal communications during an EMS event. |
| | | | | | | List factors that impede effective verbal communications. |
| | | | | | | List factors which enhance verbal communications. |
| | | | | | | Identify the importance of proper written communications during an EMS event. |
| | | | | | | List factors which impede effective written communications. |
| | | | | | | List factors which enhance written communications. |
| | | | | | | Recognize the legal status of written communications related to an EMS event. |
| | | | | | | State the importance of data collection during an EMS event. |
| | | | | | | Identify technology used to collect and exchange patient and/or scene information electronically. |
| | | | | | | Recognize the legal status of patient medical information exchanged electronically. |
| | | | | | | Identify the components of the local EMS communications system and describe their function and use. |
| | | | | | | Identify and differentiate among the following communications systems:<br>a. Simplex<br>b. Multiplex |

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| | | | | | | c. Duplex<br>d. Trunked<br>e. Digital communications<br>f. Cellular telephone<br>g. Facsimile<br>h. Computer |
| | | | | | | Identify the components of the local dispatch communications system and describe their function and use. |
| | | | | | | Describe the functions and responsibilities of the Federal Communications Commission. |
| | | | | | | Describe how an EMS dispatcher functions as an integral part of the EMS team. |
| | | | | | | List appropriate information to be gathered by the Emergency Medical Dispatcher. |
| | | | | | | Identify the role of Emergency Medical Dispatch in a typical EMS event. |
| | | | | | | Identify the importance of pre-arrival instructions in a typical EMS event. |
| | | | | | | Describe the purpose of verbal communication of patient information to the hospital. |
| | | | | | | Describe information that should be included in patient assessment information verbally reported to medical direction. |
| | | | | | | Diagram a basic model of communications. |
| | | | | | | Organize a list of patient assessment information in the correct order for electronic transmission to medical direction according to the format used locally. |
| | | | | | | Show appreciation for proper terminology when describing a patient or patient condition. |
| | | | | | | Demonstrate the ability to use the local dispatch communications system. |
| | | | | | | Demonstrate the ability to use a radio. |
| | | | | | | Demonstrate the ability to use the biotelemetry equipment used locally. |

## Unit 14: Documentation

**Unit Objective: At the completion of this unit, the paramedic student will be able to effectively document the essential elements of patient assessment, care and transport.**

| A | B | C | D | F | N | |
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| | | | | | | Identify the general principles regarding the importance of EMS documentation and ways in which documents are used. |
| | | | | | | Identify and use medical terminology correctly. |
| | | | | | | Recite appropriate and accurate medical abbreviations and acronyms. |

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| | | | | | | Record all pertinent administrative information. |
| | | | | | | Explain the role of documentation in agency reimbursement. |
| | | | | | | Analyze the documentation for accuracy and completeness, including spelling. |
| | | | | | | Identify and eliminate extraneous or nonprofessional information. |
| | | | | | | Describe the differences between subjective and objective elements of documentation. |
| | | | | | | Evaluate a finished document for errors and omissions. |
| | | | | | | Evaluate a finished document for proper use and spelling of abbreviations and acronyms. |
| | | | | | | Evaluate the confidential nature of an EMS report. |
| | | | | | | Describe the potential consequences of illegible, incomplete, or inaccurate documentation. |
| | | | | | | Describe the special considerations concerning patient refusal of transport. |
| | | | | | | Record pertinent information using a consistent narrative format. |
| | | | | | | Explain how to properly record direct patient or bystander comments. |
| | | | | | | Describe the special considerations concerning mass casualty incident documentation. |
| | | | | | | Apply the principles of documentation to computer charting, as access to this technology becomes available. |
| | | | | | | Identify and record the pertinent, reportable clinical data of each patient interaction. |
| | | | | | | Note and record pertinent negative clinical findings. |
| | | | | | | Correct errors and omissions, using proper procedures as defined under local protocol. |
| | | | | | | Revise documents, when necessary, using locally-approved procedures. |
| | | | | | | Assume responsibility for self-assessment of all documentation. |
| | | | | | | Demonstrate proper completion of an EMS event record used locally. |
| | | | | | | Advocate among peers the relevance and importance of properly completed documentation. |
| | | | | | | Resolve the common negative attitudes toward the task of documentation. |
| | | | | | | Understand documentation as it pertains to insurance concerns. |

## Unit 15: Medical Terminology

**Unit Objective: At the conclusion of this unit, the paramedic student will be able to identify and correctly**

| use word roots, prefixes, suffixes, and combining forms while paying attention to spelling and pronunciation and recognizing commonly accepted medical abbreviations. | | | | | | |
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| | | | | | | Identify the role and recognize examples of word roots, prefixes, suffixes, and combining forms. |
| | | | | | | Demonstrate correct usage of the combining vowel by correctly joining word parts to write medical terms. |
| | | | | | | Recognize the importance of always spelling medical terms correctly. |
| | | | | | | Correctly pronounce medical terms. |
| | | | | | | Recognize a list of commonly accepted medical abbreviations. |

## Unit 16: Airway Management and Ventilation

**Unit Objective: At the completion of this unit, the paramedic student will be able to establish and/or maintain a patent airway, oxygenate, and ventilate a patient.**

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| | | | | | | Explain the primary objective of airway maintenance. |
| | | | | | | Identify commonly neglected pre-hospital skills related to airway. |
| | | | | | | Identify the anatomy of the upper and lower airway. |
| | | | | | | Describe the functions of the upper and lower airway. |
| | | | | | | Explain the differences between adult and pediatric airway anatomy. |
| | | | | | | Define gag reflex. |
| | | | | | | Explain the relationship between pulmonary circulation and respiration. |
| | | | | | | List the concentration of gases that comprise atmospheric air. |
| | | | | | | Describe the measurement of oxygen in the blood. |
| | | | | | | Describe the measurement of carbon dioxide in the blood. |
| | | | | | | Describe peak expiratory flow. |
| | | | | | | List factors that cause decreased oxygen concentrations in the blood. |
| | | | | | | List the factors that increase and decrease carbon dioxide production in the body. |
| | | | | | | Define atelectasis. |
| | | | | | | Define $FiO_2$. |
| | | | | | | Define and differentiate between hypoxia and hypoxemia. |
| | | | | | | Describe the voluntary and involuntary regulation of respiration. |

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| | | | | | | Describe the modified forms of respiration. |
| | | | | | | Define normal respiratory rates and tidal volumes for the adult, child, and infant. |
| | | | | | | List the factors that affect respiratory rate and depth. |
| | | | | | | Explain the risk of infection to EMS providers associated with ventilation. |
| | | | | | | Define pulsus paradoxes. |
| | | | | | | Define and explain the implications of partial airway obstruction with good and poor air exchange. |
| | | | | | | Define complete airway obstruction. |
| | | | | | | Describe causes of upper airway obstruction. |
| | | | | | | Describe causes of respiratory distress. |
| | | | | | | Describe manual airway maneuvers. |
| | | | | | | Describe the Sellick (cricoid pressure) maneuver. |
| | | | | | | Describe complete airway obstruction maneuvers. |
| | | | | | | Explain the purpose for suctioning the upper airway. |
| | | | | | | Identify types of suction equipment. |
| | | | | | | Describe the indications for suctioning the upper airway. |
| | | | | | | Identify types of suction catheters, including hard or rigid catheters and soft catheters. |
| | | | | | | Identify techniques of suctioning the upper airway. |
| | | | | | | Identify special considerations of suctioning the upper airway. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique of tracheobronchial suctioning in the intubated patient. |
| | | | | | | Describe the use of an oral and nasal airway. |
| | | | | | | Identify special considerations of tracheobronchial suctioning in the intubated patient. |
| | | | | | | Define gastric distention. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for inserting a nasogastric tube and orogastric tube. |
| | | | | | | Identify special considerations of gastric decompression. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, |

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| | | | | | | complications, and technique for inserting an oropharyngeal and nasopharyngeal airway. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient by:<br>a. Mouth-to-mouth<br>b. Mouth-to-nose<br>c. Mouth-to-mask<br>d. One person bag-valve-mask<br>e. Two person bag-valve-mask<br>f. Three person bag-valve-mask<br>g. Flow-restricted, oxygen-powered ventilation device |
| | | | | | | Explain the advantage of the two person method when ventilating with the bag-valve-mask. |
| | | | | | | Compare the ventilation techniques used for an adult patient to those used for pediatric patients. |
| | | | | | | Describe indications, contraindications, advantages, disadvantages, complications, and technique for ventilating a patient with an automatic transport ventilator (ATV). |
| | | | | | | Explain safety considerations of oxygen storage and delivery. |
| | | | | | | Identify types of oxygen cylinders and pressure regulators (including a high-pressure regulator and a therapy regulator) |
| | | | | | | List the steps for delivering oxygen from a cylinder and regulator. |
| | | | | | | Describe the use, advantages and disadvantages of an oxygen humidifier. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, liter flow range, and concentration of delivered oxygen for supplemental oxygen delivery devices. |
| | | | | | | Define, identify and describe a tracheostomy, stoma, and tracheostomy tube. |
| | | | | | | Define, identify, and describe a laryngectomy. |
| | | | | | | Define how to ventilate with a patient with a stoma, including mouth-to-stoma and bag-valve- mask-to-stoma ventilation. |
| | | | | | | Describe the special considerations in airway management and ventilation for patients with facial injuries. |
| | | | | | | Describe the special considerations in airway management and ventilation for the pediatric patient. |
| | | | | | | Differentiate endotracheal intubation from other methods of advanced airway management. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages and |

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| | | | | | | complications of endotracheal intubation. |
| | | | | | | Describe laryngoscopy for the removal of a foreign body airway obstruction. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment, and technique for direct laryngoscopy. |
| | | | | | | Describe visual landmarks for direct laryngoscopy. |
| | | | | | | Describe use of cricoid pressure during intubation. |
| | | | | | | Describe indications, contraindications, advantages, disadvantages, complications, equipment and technique for digital endotracheal intubation. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for using a dual lumen airway. |
| | | | | | | Describe and differentiate between at least three dual lumen airways: PtL, Combitube and King Airway. |
| | | | | | | Describe indications, contraindications, advantages, disadvantages, complications, equipment and technique for rapid sequence intubation with neuromuscular blockade. |
| | | | | | | Identify neuromuscular blocking drugs and other agents used in rapid sequence intubation. |
| | | | | | | Describe indications, contraindications, advantages, disadvantages, complications, equipment and technique for sedation during intubation. |
| | | | | | | Identify sedative agents used in airway management. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for nasotracheal intubation. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages and complications for performing an open cricothyrotomy. |
| | | | | | | Describe the equipment and technique for performing an open cricothyrotomy. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for translaryngeal catheter ventilation (needle cricothyrotomy). |
| | | | | | | Describe methods of assessment for confirming correct placement of an endotracheal tube. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for capnography. |
| | | | | | | Differentiate possible causes of various waveforms observed on a capnograph. |
| | | | | | | Describe the correct positioning and use of the ResQpod during cardiac arrest. |
| | | | | | | Describe methods for securing an endotracheal tube. |

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| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for extubation. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for LMA insertion. |
| | | | | | | Describe methods of endotracheal intubation in the pediatric patient. |
| | | | | | | Defend the need to oxygenate and ventilate a patient. |
| | | | | | | Defend the necessity of establishing and/or maintaining patency of a patient's airway. |
| | | | | | | Describe the indications, contraindications, advantages, disadvantages, complications, equipment and technique for Continuous Positive Airway Pressure. |
| | | | | | | Identify patients that would benefit from the use of Continuous Positive Airway Pressure. |
| | | | | | | Comply with standard precautions to defend against infectious and communicable diseases. |
| | | | | | | Perform body substance isolation (BSI) procedures during basic airway management, advanced airway management, and ventilation. |
| | | | | | | Perform pulse oximetry. |
| | | | | | | Perform end-tidal $CO_2$ detection. |
| | | | | | | Perform peak expiratory flow testing. |
| | | | | | | Perform manual airway maneuvers, including:<br>a. Opening the mouth<br>b. Head-tilt/chin-lift maneuver<br>c. Jaw-thrust without head-tilt maneuver<br>d. Modified jaw-thrust maneuver |
| | | | | | | Perform manual airway maneuvers for pediatric patients, including:<br>a. Opening the mouth<br>b. Head-tilt/chin-lift maneuver<br>c. Jaw-thrust without head-tilt maneuver<br>d. Modified jaw-thrust maneuver |
| | | | | | | Perform the Sellick maneuver (cricoid pressure). |
| | | | | | | Perform complete airway obstruction maneuvers, including:<br>a. Heimlich maneuver<br>b. Finger sweep<br>c. Chest thrusts<br>d. Removal with Magill forceps |
| | | | | | | Demonstrate suctioning the upper airway by selecting a suction device, catheter and technique. |

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| | | | | | | Perform tracheobronchial suctioning in the intubated patient by selecting a suction device, catheter and technique. |
| | | | | | | Perform gastric decompression by selecting a suction device, catheter and technique. |
| | | | | | | Demonstrate insertion of an oropharyngeal airway. |
| | | | | | | Demonstrate insertion of a nasopharyngeal airway. |
| | | | | | | Demonstrate ventilating a patient by the following techniques:<br>a. Mouth-to-mask ventilation<br>b. One person bag-valve mask<br>c. Two person bag-valve-mask<br>d. Three person bag-valve-mask<br>e. Flow-restricted, oxygen-powered ventilation device<br>f. Automatic transport ventilator<br>g. Mouth-to-stoma<br>h. Bag-valve-mask-to-stoma ventilation |
| | | | | | | Ventilate a pediatric patient using the one and two person techniques. |
| | | | | | | Perform ventilation with a bag-valve-mask with an in-line small-volume nebulizer. |
| | | | | | | Perform oxygen delivery from a cylinder and regulator with an oxygen delivery device. |
| | | | | | | Perform oxygen delivery with an oxygen humidifier. |
| | | | | | | Deliver supplemental oxygen to a breathing patient using the following devices: nasal cannula, simple face mask, partial rebreather mask, non-rebreather mask, and venturi mask. |
| | | | | | | Perform stoma suctioning. |
| | | | | | | Perform retrieval of foreign bodies from the upper airway. |
| | | | | | | Perform assessment to confirm correct placement of the endotracheal tube. |
| | | | | | | Intubate the trachea by the following methods:<br>a. Orotracheal intubation<br>b. Nasotracheal intubation<br>c. Multi-lumen airways<br>d. Digital intubation<br>e. Transillumination intubation<br>f. Open cricothyrotomy |
| | | | | | | Adequately secure an endotracheal tube. |
| | | | | | | Perform endotracheal intubation in the pediatric patient. |
| | | | | | | Determine appropriate airway adjuncts for infants and children. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Discuss complications of improper utilization of airway adjuncts with infants and children. |
| | | | | | | Discuss appropriate ventilation devices for infants and children. |
| | | | | | | Discuss complications of improper utilization of ventilation devices with infants and children. |
| | | | | | | Discuss appropriate endotracheal intubation equipment for infants and children. |
| | | | | | | Identify complications of improper endotracheal intubation procedure in infants and children. |
| | | | | | | Perform transtracheal catheter ventilation (needle cricothyrotomy). |
| | | | | | | Perform extubation. |
| | | | | | | Perform replacement of a tracheostomy tube through a stoma. |
| | | | | | | Demonstrate the application of a CPAP/BiPAP unit. |
| | | | | | | Demonstrate proper technique for administering blow-by oxygen to infants and children. |
| | | | | | | Demonstrate the proper utilization of a pediatric non-rebreather oxygen mask. |
| | | | | | | Demonstrate proper technique for suctioning of infants and children. |
| | | | | | | Demonstrate appropriate use of airway adjuncts with infants and children. |
| | | | | | | Demonstrate appropriate use of ventilation devices for infants and children. |
| | | | | | | Demonstrate endotracheal intubation procedures in infants and children. |
| | | | | | | Demonstrate appropriate treatment/management of intubation complications for infants and children. |
| | | | | | | Demonstrate appropriate needle cricothyrotomy in infants and children. |
| | | | | | | Demonstrate appropriate interventions for infants and children with a partially obstructed airway. |
| | | | | | | Demonstrate age appropriate basic airway clearing maneuvers for infants and children with a completely obstructed airway. |
| | | | | | | Demonstrate proper technique for direct laryngoscopy and foreign body retrieval in infants and children with a completely obstructed airway. |
| | | | | | | Demonstrate appropriate airway and breathing control maneuvers for infant and child trauma patients. |
| | | | | | | Demonstrate appropriate treatment of infants and children requiring advanced airway and breathing control. |
| **Unit 17: An Introduction to the Human Body** | | | | | | |

| **Unit objective: At the completion of this unit, the paramedic student will be able to describe the structure, function and location of body regions and organs while understanding the concept of homeostasis.** | | | | | | |
|---|---|---|---|---|---|---|
| A | B | C | D | F | N | |
| | | | | | | Define anatomy, physiology, and pathophysiology |
| | | | | | | Name the levels of organization of the body and explain each |
| | | | | | | Name the organ systems of the body |
| | | | | | | Define homeostasis and give an example of a typical homeostatic mechanism |
| | | | | | | Describe the components of a feedback system |
| | | | | | | Contrast the operation of negative and positive feedback systems |
| | | | | | | Explain the relationship between homeostasis and disease |
| | | | | | | Describe the anatomical position |
| | | | | | | Describe the sagittal, midsagittal, transverse and frontal planes |
| | | | | | | Use proper terminology to describe the location of body parts with respect to one another |
| | | | | | | Name the body cavities, their membranes and some organs within each cavity |
| | | | | | | Explain the four quadrants of the abdomen and name the organs in those areas |
| | | | | | | Name and describe the nine abdominopelvic regions |
| **Unit 18: The Chemical Level of Organization**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the chemical level of organization of the human body.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Define matter, element, atom, proton, neutron, and electron |
| | | | | | | Using symbols, name some common elements found in the body |
| | | | | | | Describe the purpose of ionic, covalent and hydrogen bonds in the body |
| | | | | | | Define a chemical reaction and explain the basic differences between synthesis, decomposition, exchange, reversible, oxidation-reduction, exergonic and endergonic chemical reactions. |
| | | | | | | Describe what happens in synthesis and decomposition reactions |
| | | | | | | List and compare the properties of inorganic acids, bases, salts, and water |
| | | | | | | Explain the importance of water to the function of the body |
| | | | | | | Describe where water is found in the body |
| | | | | | | Explain the roles of oxygen and carbon dioxide in cell respiration |
| | | | | | | Explain pH and state normal pH ranges in body fluids |
| | | | | | | Explain how a buffer system resists major pH changes |
| | | | | | | Describe the functions and types of sugars, fats, and proteins |

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|---|---|---|---|---|---|---|
| | | | | | | Explain how enzymes function as catalysts |
| | | | | | | Describe the function of DNA, RNA and ATP |

## Unit 19: The Cellular Level of Organization

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the cellular level of organization of the human body.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Name the organic molecules that make up the cell membrane and state their functions |
| | | | | | | State the arrangement of the molecules in the cell membrane |
| | | | | | | State the five functions of proteins in the cell membrane |
| | | | | | | Describe the cytoplasm |
| | | | | | | Describe how the cell membrane regulates the composition of the cytoplasm |
| | | | | | | Explain isotonic, hypotonic, and hypertonic solutions and their effects on the cell |
| | | | | | | State the function of the nucleus and chromosomes |
| | | | | | | Describe what happens in mitosis and meiosis and describe the importance of each. |
| | | | | | | Describe the function of the cell organelles |
| | | | | | | Describe the structure and functions of the following cellular structures: cytosol, nucleus, ribosomes, endoplasmic reticulum, Golgi complex, lysosomes, peroxisomes, mitochondria, cytoskeleton, flagella, cilia and centrosome |
| | | | | | | Define each of these cellular transport mechanisms and give an example of the role of each in the body: diffusion, osmosis, facilitated diffusion, active transport, filtration, phagocytosis and pinocytosis |

## Unit 20: The Tissue Level of Organization

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the tissue level of organization of the human body.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Describe the structure and functions of the three principle types of cell junctions |
| | | | | | | Describe the four major categories of tissues and give general characteristics of each |
| | | | | | | Describe the function of epithelial tissue depending on their location |
| | | | | | | Describe the functions of connective tissue and relate them to the function of the body or an organ system |
| | | | | | | Explain the basic differences between smooth, skeletal and cardiac muscle |
| | | | | | | Describe in brief nervous tissue |
| | | | | | | Name the organs made of nerve tissue |
| | | | | | | Describe the location of pleural membranes, pericardial membranes, and the perineum-mesentery |
| | | | | | | State the location of mucous membranes and state the function of mucus |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Name some membranes made of connective tissue |
| **Unit 21: The Integumentary System**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the integumentary system.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | State the three functions of the integumentary system |
| | | | | | | Describe the anatomy and the seven functions of the skin |
| | | | | | | Name the two layers of skin |
| | | | | | | State the location and function of the stratum corneum and the stratum germinativum |
| | | | | | | Describe the function of melanocytes and melanin |
| | | | | | | Describe the function of hair and nails |
| | | | | | | Describe the functions of the secretions of sebaceous glands, ceruminous glands and eccrine sweat glands |
| | | | | | | Describe how the arterioles in the dermis respond to heat, cold, and stress |
| | | | | | | Outline the steps involved in epidermal wound healing and deep wound healing |
| | | | | | | Name the tissues that make up the subcutaneous tissue and describe their functions |
| **Unit 22: The Skeletal System: Bone Tissue**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of bone tissue.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Describe the function of the skeleton |
| | | | | | | Explain how bones are classified and give an example of each |
| | | | | | | Identify the parts of a long bone |
| | | | | | | Describe the histological features of compact and spongy bone tissue |
| | | | | | | Describe how the embryonic skeleton is replaced by bone |
| | | | | | | State the nutrients necessary for bone growth |
| | | | | | | Name the hormones involved in bone growth and maintenance |
| | | | | | | Define a fracture, describe several common kinds of fractures, and describe the sequence of events involved in fracture repair |
| | | | | | | Explain what is meant by exercise for bones and explain its importance |
| **Unit 23: The Skeletal System: The Axial Skeleton**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the axial skeleton.** | | | | | | |
| A | B | C | D | F | N | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Identify the two major subdivisions of the skeleton and list the bones in each area |
| | | | | | | Identify principle sutures, fontanels, paranasal sinuses, and foramina of the skull |
| | | | | | | Identify the bones of the vertebral column and their principal markings |
| | | | | | | Identify the bones of the thorax and their principal markings |
| **Unit 24: The Skeletal System: The Appendicular Skeleton**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the appendicular skeleton.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Identify the bones of the pectoral (shoulder) girdle |
| | | | | | | Identify the upper limb and its component bones |
| | | | | | | Identify the components of the pelvic (hip) girdle |
| | | | | | | Identify the lower limb and its component bones |
| **Unit 25: Articulations**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of joints.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Define an articulation (joint) and identify the factors that determine the types and degree (range) of movement at a joint |
| | | | | | | Explain how joints are classified; give an example of each and describe the movements possible |
| | | | | | | Describe the parts of a synovial joint and explain their function |
| **Unit 26: Muscle Tissue**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of muscle tissue.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Describe muscle structure in terms of muscle cells, tendons and bones |
| | | | | | | Describe the difference between antagonistic and synergistic muscles |
| | | | | | | Name the energy sources for muscle contraction and state the simple equation for cell respiration |
| | | | | | | Explain the importance of hemoglobin and myoglobin and oxygen debt and lactic acid |
| | | | | | | Describe the neuromuscular junction and explain the function for each part |
| | | | | | | Describe the structure of a sarcomere |
| | | | | | | Explain polarization, depolarization and repolarization in terms of ions and charges |
| | | | | | | Describe the sliding filament theory of muscle contraction |

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| | | | | | | Explain the roles played by muscle in homeostasis of body temperature |
| | | | | | | Explain how muscle tension can be varied |
| | | | | | | Identify the sources of ATP used during muscular contraction |
| | | | | | | Describe the different types of skeletal muscle fibers and compare them to cardiac and smooth muscle fibers |
| **Unit 27: The Muscular System**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the muscular system.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | State the major muscles of the body and their functions |
| | | | | | | Define the criteria employed in naming skeletal muscles |
| | | | | | | Describe the relationship between bones and skeletal muscles in producing body movements |
| | | | | | | Define a lever and fulcrum and compare the three classes of levers on the basis of placement of the fulcrum, effort and resistance |
| | | | | | | Discuss the administration of drugs by intramuscular injections |
| **Unit 28: Nervous Tissue**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of nervous tissue.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Name the divisions of the nervous system and state the general functions of each |
| | | | | | | Identify the three basic functions of the nervous system in maintaining homeostasis |
| | | | | | | Name the parts of a neuron and the function of each |
| | | | | | | Explain the importance of Schwann cells in the peripheral nervous system and neuroglia in the central nervous system |
| | | | | | | Describe the electrical nerve impulse and impulse transmission at the synapse |
| | | | | | | Describe the types of neurons, nerves and nerve tracts |
| | | | | | | Define gray and white matter and give examples of each |
| | | | | | | Describe the cellular properties that permit communication among neurons and muscle fibers |
| | | | | | | Describe the factors that contribute to generation of a resting membrane potential |
| | | | | | | List the sequence of events involved in generation of a nerve action potential |
| **Unit 28: The Spinal Cord and Spinal Nerves**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the** | | | | | | |

| structural components and functional aspects of the spinal cord and spinal nerves. | | | | | | |
|---|---|---|---|---|---|---|
| A | B | C | D | F | N | |
| | | | | | | Describe the protection and gross anatomical features of the spinal cord |
| | | | | | | Describe the functions of the principal sensory and motor tracts of the spinal cord |
| | | | | | | Explain the importance of stretch reflexes and flexor reflexes |
| | | | | | | Describe the reflex arc |
| | | | | | | Describe the clinical significance of dermatomes and myotomes |
| **Unit 29: The Brain and Cranial Nerves**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the brain and cranial nerves.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | State the functions of the parts of the brain and locate each part on a diagram |
| | | | | | | Name the meninges and describe their locations |
| | | | | | | State the locations and functions of cerebrospinal fluid |
| | | | | | | Explain the formation and circulation of cerebrospinal fluid |
| | | | | | | Describe the blood supply to the brain and the blood-brain barrier |
| | | | | | | Define a cranial nerve and identify the 12 pairs of cranial nerves by name, number, type, location and function |
| **Unit 30: Sensory, Motor, and Integrative Systems**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of sensory, motor and integrative systems.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Explain the general purpose of sensations |
| | | | | | | Describe the classification of receptors |
| | | | | | | Name the parts of the sensory pathway and the general functions of each part |
| | | | | | | Describe the characteristics of sensations |
| | | | | | | Name the cutaneous senses and explain their purpose |
| | | | | | | Explain referred pain and explain its importance |
| | | | | | | Distinguish somatic, visceral, referred, and phantom pain |
| | | | | | | Explain the importance of proprioception, or muscle sense |
| | | | | | | Describe the integration of sensory input and motor output |
| | | | | | | Compare the location and functions of the direct and indirect motor pathways |
| | | | | | | Explain how the basal ganglia and cerebellum contribute to motor responses |
| | | | | | | Compare integrative functions such as learning, memory, wakefulness and sleep |

## Unit 31: The Special Senses

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the special senses.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Describe the pathways for the senses of smell and taste and explain how these senses are interrelated |
| | | | | | | Locate the receptors for olfaction and describe the neural pathway for smell |
| | | | | | | Identify the gustatory receptors and describe the neural pathway for taste |
| | | | | | | Name the parts of the eye and explain their function in sight |
| | | | | | | Discuss image formation by describing refraction, accommodation, and constriction of the pupil |
| | | | | | | Describe the retinal processing of visual input and the neural pathway of light impulses to the brain |
| | | | | | | Name the parts of the ear and explain their function in hearing |
| | | | | | | Describe the physiology of equilibrium |

## Unit 32: The Autonomic Nervous System

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the autonomic nervous system.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Compare the structural and functional differences of the somatic and autonomic nervous systems |
| | | | | | | Identify the principal structural features of the autonomic nervous system |
| | | | | | | Compare the sympathetic and parasympathetic divisions of the autonomic nervous system in terms of anatomy, physiology, and the neurotransmitters released |
| | | | | | | Describe the effects of alpha and beta stimulation. |
| | | | | | | Describe the effects of alpha and beta blockade. |
| | | | | | | Describe the various neurotransmitters and receptors involved in autonomic responses |
| | | | | | | Explain the relationship of the hypothalamus to the autonomic nervous system |

## Unit 33: The Endocrine System

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the endocrine system.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Define the components of the endocrine system and discuss the functions of the endocrine and nervous systems in maintaining homeostasis |
| | | | | | | Distinguish between endocrine and exocrine glands |

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| | | | | | | Explain why the hypothalamus is considered to be an endocrine gland |
| | | | | | | Describe the location, histology, hormones, and functions of the following endocrine glands: pituitary, thyroid, parathyroids, adrenals, pancreas, ovaries, testes, pineal, and thymus |
| | | | | | | Define hormone and prostaglandin |
| | | | | | | Identify the primary endocrine glands and list the major hormones secreted by each |
| | | | | | | Explain the roles of positive and negative feedback mechanisms in hormone secretions |
| | | | | | | Describe the relationship between parathyroid hormone and calcitonin |
| | | | | | | Describe the relationship between insulin and glucagon |
| | | | | | | Explain what prostaglandins are made of and state some of their functions |
| | | | | | | Explain how protein hormones are believed to exert their effects |
| | | | | | | Explain how steroid hormones are believed to exert their effects |

## Unit 34: The Cardiovascular System – The Blood

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the blood.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Describe the primary functions of blood |
| | | | | | | Contrast the general roles of blood, lymph, and interstitial fluid in maintaining homeostasis |
| | | | | | | List the components of plasma and explain their importance |
| | | | | | | List the formed elements of blood and state the primary functions of each |
| | | | | | | Name the hemopoietic tissues and the kinds of blood cells each produces |
| | | | | | | Identify the anatomy of the hematopoietic system. |
| | | | | | | Describe volume and volume-control related to the hematopoietic system. |
| | | | | | | Identify and describe the blood-forming organs. |
| | | | | | | Describe normal red blood cell (RBC) production, function and destruction. |
| | | | | | | Explain the significance of the hematocrit with respect to red cell size and number. |
| | | | | | | Explain the correlation of the RBC count, hematocrit and hemoglobin values. |
| | | | | | | Define anemia. |
| | | | | | | Describe normal white blood cell (WBC) production, function and destruction. |
| | | | | | | Describe what happens to red blood cells at the end of their life span including the fate of hemoglobin |
| | | | | | | Explain the ABO and Rh blood types. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Identify blood groups. |
| | | | | | | Name the five kinds of white blood cells and the functions of each. |
| | | | | | | Identify the characteristics of the inflammatory process. |
| | | | | | | Identify the difference between cellular and humoral immunity. |
| | | | | | | Identify alterations in immunologic response. |
| | | | | | | Describe the number, normal function, types and life span of leukocytes. |
| | | | | | | List the leukocyte disorders. |
| | | | | | | State what platelets are and explain how they are involved in hemostasis. |
| | | | | | | Describe the three stages of blood clotting. |
| | | | | | | Describe platelets with respect to normal function, life span and numbers. |
| | | | | | | Describe the components of the hemostatic mechanism. |
| | | | | | | Describe the function of coagulation factors, platelets and blood vessels necessary for normal coagulation. |
| | | | | | | Describe the intrinsic and extrinsic clotting systems with respect to identification of factor deficiencies in each stage |
| | | | | | | Explain how abnormal clotting is prevented in the vascular system. |
| | | | | | | Define fibrinolysis. |

**Unit 35: The Cardiovascular System – The Heart**

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the heart.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Describe the location of the heart in terms of body cavities and relationship to other structures |
| | | | | | | Name the chambers of the heart and the vessels that enter or leave each |
| | | | | | | State the valves of the heart and their function |
| | | | | | | State how heart sounds are created |
| | | | | | | Trace the pathway of a blood cell throughout the body |
| | | | | | | Describe coronary circulation |
| | | | | | | Describe the cardiac conduction pathway and its relationship to a normal electrocardiogram |
| | | | | | | Explain stroke volume, cardiac output and Starling's law of the heart |
| | | | | | | Define cardiac output (CO) and describe the factors that effect it |
| | | | | | | Explain how the nervous system regulates the function of the heart |

**Unit 36: The Cardiovascular System – Blood Vessels and Hemodynamics**

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of blood vessels and gain an understanding of**

| hemodynamics. | | | | | | |
|---|---|---|---|---|---|---|
| A | B | C | D | F | N | |
| | | | | | | Describe the structure and function of each of the blood vessels: arteries, veins and capillaries |
| | | | | | | Describe the exchange of gases that occur at the capillary level |
| | | | | | | Name the major systemic arteries and the parts of the body they nourish |
| | | | | | | Name the major systemic veins and the parts of the body they drain of blood |
| | | | | | | Define blood pressure and state the normal ranges for the systolic and diastolic indices |
| | | | | | | Explain how blood pressure changes throughout the cardiovascular system and describe the factors that determine mean arterial pressure |
| | | | | | | Describe the factors that determine systemic vascular resistance and explain how the return of venous blood to the heart is accomplished |
| **Unit 37: The Lymphatic System, Nonspecific Resistance to Disease, and Immunity**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the lymphatic system while understanding immunity and nonspecific resistance to disease.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Describe the functions of the lymphatic system |
| | | | | | | State how lymph is formed |
| | | | | | | Describe the system of lymph vessels and explain how lymph is returned to the blood |
| | | | | | | State the location and function of lymph nodules and nodes |
| | | | | | | State the location and function of the spleen |
| | | | | | | Define immunity |
| | | | | | | Explain the role of the thymus in immunity |
| | | | | | | Explain the differences between humoral immunity and cell mediated immunity |
| | | | | | | Compare and contrast the development and function of B cells and T cells |
| | | | | | | Describe the differences between acquired immunity and genetic immunity |
| | | | | | | Explain how vaccines work |
| | | | | | | Discuss the roles of the skin and mucous membranes, antimicrobial substances, phagocytosis, inflammation, and fever in nonspecific resistance to disease |
| | | | | | | Explain the relationship between antigen and antibody |
| **Unit 38: The Respiratory System**<br>**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the respiratory system.** | | | | | | |
| A | B | C | D | F | N | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | State the general function of the respiratory system |
| | | | | | | State the pathway of the respiratory system including nasal cavities, pharynx and larynx |
| | | | | | | State the function of the turbinates in the nasal cavity |
| | | | | | | Describe the structure and function of the larynx and the speaking mechanism |
| | | | | | | State the roles of the visceral and parietal pleura in respiration |
| | | | | | | State the changes in air pressure within the thoracic cavity during respiration |
| | | | | | | Explain the diffusion of gases in external and internal respiration |
| | | | | | | Describe how oxygen and carbon dioxide are transported in the blood |
| | | | | | | Explain the nervous and chemical mechanisms that regulate respiration |
| | | | | | | Explain how respiration affects the pH of certain body fluids |

## Unit 39: The Digestive System

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the digestive system.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Describe the general function of the digestive system and name the major divisions |
| | | | | | | Identify the accessory organs of digestion |
| | | | | | | Explain the difference between mechanical and chemical digestion |
| | | | | | | Describe the structure and function of the teeth and tongue |
| | | | | | | Explain the function of saliva |
| | | | | | | Describe the location and function of the pharynx and esophagus |
| | | | | | | List and describe the four layers of the alimentary canal |
| | | | | | | Describe the difference in absorption between the large and small intestine |
| | | | | | | Describe the function of the normal flora in the colon |
| | | | | | | Define peristalsis |
| | | | | | | Define chyme |
| | | | | | | State the normal range of body temperature |

## Unit 40: Metabolism

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of metabolism.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Explain how food intake is regulated |
| | | | | | | Define metabolism, catabolism and anabolism |
| | | | | | | Describe oxidation-reduction reactions and explain the role of ATP in metabolism |

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| | | | | | | State the different ways heat is generated and lost in the body |
| | | | | | | State why the hypothalamus is the thermostat of the body |
| | | | | | | State what the products of cell respiration are and how the body disposes of them |
| | | | | | | Describe the metabolic roles of fats, glucose and proteins |
| | | | | | | Describe basal metabolic rate and the factors that affect it |
| | | | | | | Define kilocalories |

## Unit 41: The Urinary System

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the urinary system.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Describe the location and general function of each organ in the urinary system |
| | | | | | | Name the parts of a nephron |
| | | | | | | Define glomerular filtration rate |
| | | | | | | Discuss the process of glomerular filtration, tubular reabsorption, and tubular secretion |
| | | | | | | Describe how the kidneys function in maintaining normal blood volume and pressure |
| | | | | | | Describe how the kidneys help to maintain normal blood pH and electrolyte balance |
| | | | | | | State the hormones that affect kidney function |
| | | | | | | Explain the interaction between capillary blood pressure and blood proteins |
| | | | | | | Describe the characteristics of normal urine |
| | | | | | | Discuss the anatomy, histology, and physiology of the ureters, urinary bladder, and urethra |

## Unit 42: Fluid, Electrolyte, and Acid-Base Homeostasis

**Unit objective: At the completion of this unit, the paramedic student will understand acid-base homeostasis as it relates to body fluids and electrolytes.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Describe the water compartments and the name for the water in each |
| | | | | | | Explain how water moves between the compartments |
| | | | | | | Explain how water is taken in by the body and exits the body |
| | | | | | | Describe an acid and a base |
| | | | | | | List the mechanisms which primarily control acid-base balance. |
| | | | | | | Describe the components on the ABG |
| | | | | | | Given an ABG report, analyze the results of the findings. |

## Unit 43: The Reproductive Systems

**Unit objective: At the completion of this unit, the paramedic student will be able to describe the structural components and functional aspects of the reproductive systems.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Define reproduction and classify the organs of reproduction by function |
| | | | | | | Define diploid and haploid |
| | | | | | | Describe the difference between spermatogenesis and oogenesis |
| | | | | | | Define gametes |
| | | | | | | Name the hormones necessary for the formation of gametes |
| | | | | | | List the essential and accessory organs of the male and female, give the general function of each |
| | | | | | | Identify and describe the structures that constitute external genitals in both sexes |
| | | | | | | Name the parts of a sperm cell |
| | | | | | | Define endometrium |
| | | | | | | Briefly describe the life cycle of an oocyte |
| | | | | | | Describe the menstrual cycle in terms of changes in hormone levels and the condition of the endometrium |
| | | | | | | Beginning with fertilization, describe the major developmental changes during gestation |
| | | | | | | Describe the structure and function of the placenta and umbilical cord |
| | | | | | | Describe the difference between fetal circulation/respiration and adult circulation/respiration |
| | | | | | | State the length of an average gestation period |
| | | | | | | Describe the states of labor |
| | | | | | | Describe the major changes that take place in an infant at birth |
| | | | | | | Explain how microorganisms are named and classified |
| | | | | | | Describe the distribution of and the benefits of normal flora |
| | | | | | | Explain what is meant by infectious disease |
| | | | | | | Describe the different methods by which infectious diseases are spread |
| | | | | | | List some important infectious diseases |

## Unit 44: Development and Inheritance

**Unit objective: At the completion of this unit, the paramedic student will be able to describe development and inheritance.**

| A | B | C | D | F | N | |
|---|---|---|---|---|---|---|
| | | | | | | Explain the processes associated with fertilization, formation of morula, |

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| | | | | | | development of a blastocyst, and implantation |
| | | | | | | Discuss the principal maternal body changes associated with embryonic and fetal growth |
| | | | | | | Compare the sources and functions of the hormones secreted during pregnancy |
| | | | | | | Describe the anatomical and physiological changes associated with gestation |
| | | | | | | Discuss the physiology and control of lactation |
| | | | | | | Define inheritance and describe the inheritance of several traits |
| **Unit 45: Pathophysiology**<br>**Unit Objective: At the completion of this unit, the paramedic student will be able to apply the general concepts of pathophysiology for the assessment and management of emergency patients.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Discuss cellular adaptation. |
| | | | | | | Describe cellular injury and cellular death. |
| | | | | | | Describe the factors that precipitate disease in the human body. |
| | | | | | | Describe the cellular environment. |
| | | | | | | Describe the pathology and clinical manifestations and prognosis associated with:<br>1. Anemia<br>2. Leukemia<br>3. Lymphomas<br>4. Polycythemia<br>5. Disseminated intravascular coagulopathy<br>6. Hemophilia<br>7. Sickle cell disease<br>8. Multiple myeloma |
| | | | | | | Integrate pathophysiological principles into the assessment of a patient with hematologic disease. |
| | | | | | | Discuss hypoperfusion. |
| | | | | | | Define cardiogenic, hypovolemic, neurogenic, anaphylactic and septic shock. |
| | | | | | | Describe multiple organ dysfunction syndrome. |
| | | | | | | Define the characteristics of the immune response. |
| | | | | | | Discuss induction of the immune system. |
| | | | | | | Discuss fetal and neonatal immune function. |
| | | | | | | Discuss aging and the immune function in the elderly. |
| | | | | | | Describe the inflammation response. |
| | | | | | | Discuss the role of mast cells as part of the inflammation response. |
| | | | | | | Describe the plasma protein system. |

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| | | | | | | Discuss the cellular components of inflammation. |
| | | | | | | Describe the systemic manifestations of the inflammation response. |
| | | | | | | Describe the resolution and repair from inflammation. |
| | | | | | | Discuss the effect of aging on the mechanisms of self-defense. |
| | | | | | | Discuss hypersensitivity. |
| | | | | | | Describe deficiencies in immunity and inflammation. |
| | | | | | | Describe homeostasis as a dynamic steady state. |
| | | | | | | List types of tissue. |
| | | | | | | Describe the systemic manifestations that result from cellular injury. |
| | | | | | | Describe neuroendocrine regulation. |
| | | | | | | Discuss the inter-relationships between stress, coping, and illness. |
| | | | | | | Describe how acquired factor deficiencies may occur. |
| | | | | | | Define genetic disease. |
| | | | | | | Explain how genes can cause disease. |
| | | | | | | Define homologous chromosomes, autosomes, sex chromosomes and genes. |
| | | | | | | Define alleles, genotype, phenotype, homozygous, and heterozygous. |
| | | | | | | Discuss the difference between dominant and recessive traits. |
| | | | | | | List some important genetic diseases. |
| | | | | | | Discuss analyzing disease risk. |
| | | | | | | Describe environmental risk factors. |
| | | | | | | Discuss combined effects and interaction among risk factors. |
| | | | | | | Describe aging as a risk factor for disease. |
| | | | | | | Discuss familial diseases and associated risk factors. |

## Unit 46: Research in EMS

**Unit Objective: At the completion of this unit, the paramedic student will understand the importance of research while being exposed to different methods of study and sources of information.**

| A | B | C | D | F | N | |
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| | | | | | | Understand that every field advances with information gained through research. |
| | | | | | | Define basic statistical terms. |
| | | | | | | Differentiate between descriptive, case-control, cohort and intervention studies. |

## Unit 47: Pharmacology

**Unit Objective: At the completion of this unit, the paramedic student will be able to differentiate medications by recognizing the different names (chemical, generic or trade) their sources, classification, legislative acts governing usage, properties and routes of administration.**

| A | B | C | D | F | N | |
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| | | | | | | Describe historical trends in pharmacology. |
| | | | | | | Differentiate among the chemical, generic (nonproprietary), and trade (proprietary) names of a drug. |
| | | | | | | List the four main sources of drug products. |
| | | | | | | Describe how drugs are classified. |
| | | | | | | List the authoritative sources for drug information. |
| | | | | | | List legislative acts controlling drug use and abuse in the United States. |
| | | | | | | Differentiate among Schedule I, II, III, IV, and V substances. |
| | | | | | | List examples of substances in each schedule. |
| | | | | | | Discuss standardization of drugs. |
| | | | | | | Discuss investigational drugs, including the Food and Drug Administration (FDA) approval process and the FDA classifications for newly approved drugs. |
| | | | | | | Discuss special consideration in drug treatment with regard to pregnant, pediatric and geriatric patients. |
| | | | | | | Discuss the paramedic's responsibilities and scope of management pertinent to the administration of medications. |
| | | | | | | Review the specific anatomy and physiology pertinent to pharmacology with additional attention to body fluids, electrolytes and acid-base balance. |
| | | | | | | Review the specific anatomy and physiology pertinent to pharmacology with additional attention to autonomic pharmacology. |
| | | | | | | List and describe general properties of drugs. |
| | | | | | | List and describe liquid and solid drug forms. |
| | | | | | | List and differentiate routes of drug administration. |
| | | | | | | Differentiate between enteral and parenteral routes of drug administration. |
| | | | | | | Describe mechanisms of drug action. |
| | | | | | | List and differentiate the phases of drug activity, including the pharmaceutical, pharmacokinetic, and pharmacodynamic phases. |
| | | | | | | Describe the process called pharmacokinetics, pharmocodynamics, including theories of drug action, drug-response relationship, factors altering drug responses, predictable drug responses, iatrogenic drug responses, and unpredictable adverse drug responses. |
| | | | | | | Differentiate among drug interactions. |
| | | | | | | Discuss considerations for storing and securing medications. |
| | | | | | | List the component of a drug profile by classification. |
| | | | | | | List and describe drugs that the paramedic may administer according to local protocol, to include the following information: trade and generic names, class, |

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| | | | | | | pharmacological actions, uses, adult doses, side effects, contraindications, plasma half-life, excretion, methods of administration, antidotes, precautions, and the pediatric and neonatal doses. |
| | | | | | | Integrate pathophysiological principles of pharmacology with patient assessment. |
| | | | | | | Synthesize patient history information and assessment findings to form a field impression. |
| | | | | | | Synthesize a field impression to implement a pharmacologic management plan. |
| | | | | | | Assess the pathophysiology of a patient's condition by identifying classifications of drugs. |
| | | | | | | Serve as a model for obtaining a history by identifying classifications of drugs. |
| | | | | | | Defend the administration of drugs by a paramedic to affect positive therapeutic effect. |
| | | | | | | Advocate drug education through identification of drug classifications. |
| **Unit 48: Venous Access and Medication Administration**<br>**Unit Objective: At the completion of this unit, the paramedic student will be able to calculate medication dosages and demonstrate the correct delivery of the medication.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Review mathematical principles. |
| | | | | | | Review the specific anatomy and physiology pertinent to medication administration. |
| | | | | | | Review mathematical equivalents. |
| | | | | | | Differentiate temperature readings between the Centigrade and Fahrenheit scales. |
| | | | | | | Discuss formulas as a basis for performing drug calculations. |
| | | | | | | Discuss applying basic principles of mathematics to the calculation of problems associated with medication dosages. |
| | | | | | | Describe how to perform mathematical conversions from the household system to the metric system. |
| | | | | | | Describe the indications, equipment needed, technique used, precautions, and general principles of peripheral venous or external jugular cannulation. |
| | | | | | | Discuss legal aspects affecting medication administration. |
| | | | | | | Discuss the "six rights" of drug administration and correlate these with the principles of medication administration. |
| | | | | | | Describe the importance of a “medication administration cross check” for patient safety. |
| | | | | | | Discuss medical asepsis and the differences between clean and sterile techniques. |
| | | | | | | Describe use of antiseptics and disinfectants. |
| | | | | | | Describe the use of universal precautions and body substance isolation (BSI) procedures when administering a medication. |

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| | | | | | | Differentiate among the different dosage forms of oral medications. |
| | | | | | | Describe the equipment needed and general principles of administering oral medications. |
| | | | | | | Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the inhalation route. |
| | | | | | | Describe the indications, equipment needed, techniques used, precautions, and general principles of administering medications by the gastric tube. |
| | | | | | | Describe the indications, equipment needed, techniques used, precautions, and general principles of rectal medication administration. |
| | | | | | | Differentiate among the different parenteral routes of medication administration. |
| | | | | | | Describe the equipment needed, techniques used, complications, and general principles for the preparation and administration of parenteral medications. |
| | | | | | | Differentiate among the different percutaneous routes of medication administration. |
| | | | | | | Discuss age appropriate vascular access sites for infants and children. |
| | | | | | | Discuss the appropriate equipment for vascular access in infants and children. |
| | | | | | | Identify complications of vascular access for infants and children. |
| | | | | | | Describe the purpose, equipment needed, techniques used, complications, and general principles for obtaining a blood sample. |
| | | | | | | Describe disposal of contaminated items and sharps. |
| | | | | | | Synthesize a pharmacologic management plan including medication administration. |
| | | | | | | Integrate pathophysiological principles of medication administration with patient management. |
| | | | | | | Comply with paramedic standards of medication administration. |
| | | | | | | Comply with universal precautions and body substance isolation (BSI). |
| | | | | | | Defend a pharmacologic management plan for medication administration. |
| | | | | | | Serve as a model for medical asepsis. |
| | | | | | | Serve as a model for advocacy while performing medication administration. |
| | | | | | | Serve as a model for disposing contaminated items and sharps. |
| | | | | | | Use universal precautions and body substance isolation (BSI) procedures during medication administration. |
| | | | | | | Demonstrate cannulation of peripheral or external jugular veins. |
| | | | | | | Demonstrate intraosseous needle placement and infusion. |
| | | | | | | Demonstrate clean technique during medication administration. |
| | | | | | | Demonstrate administration of oral medications. |
| | | | | | | Demonstrate administration of medications by the inhalation route. |

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| | | | | | | Demonstrate administration of medications by the gastric tube. |
| | | | | | | Demonstrate rectal administration of medications. |
| | | | | | | Demonstrate preparation and administration of parenteral medications. |
| | | | | | | Demonstrate preparation and techniques for obtaining a blood sample. |
| | | | | | | Demonstrate an appropriate technique for insertion of peripheral intravenous catheters for infants and children. |
| | | | | | | Demonstrate an appropriate technique for administration of intramuscular, inhalation, subcutaneous, rectal, endotracheal and oral medication for infants and children. |
| | | | | | | Demonstrate an appropriate technique for insertion of an intraosseous line for adults, infants, and children. |
| | | | | | | Demonstrate perfect disposal of contaminated items and sharps. |
| **Unit 49: Pre-Hospital Resuscitation**<br>**Unit Objective: At the completion of this unit, the paramedic student will be able to identify a patient in cardiac arrest and implement a treatment plan appropriate for each patient.** | | | | | | |
| A | B | C | D | F | N | |
| | | | | | | Define the term "cardiac arrest". |
| | | | | | | Identify the characteristics of patient population at risk for developing cardiac arrest from cardiac causes. |
| | | | | | | Identify non-cardiac causes of cardiac arrest. |
| | | | | | | Describe the arrhythmias seen in cardiac arrest. |
| | | | | | | Identify the critical actions necessary in caring for the patient with cardiac arrest. |
| | | | | | | Explain how to confirm asystole using the 3-lead ECG. |
| | | | | | | Specify the methods of supporting the patient with a suspected ineffective implanted defibrillation device. |
| | | | | | | Describe the most commonly used pharmacological agents in the managements of cardiac arrest in terms of therapeutic effects. |
| | | | | | | Identify resuscitation. |
| | | | | | | Identify circumstances and situations where resuscitation efforts would not be initiated. |
| | | | | | | Identify and list the inclusion and exclusion criteria for termination of resuscitation efforts. |
| | | | | | | Identify communication and documentation protocols with medical direction and law enforcement used for termination of resuscitation efforts. |
| | | | | | | Integrate the pathophysiological principles to the assessment of the patient with cardiac arrest. |
| | | | | | | Synthesize assessment findings to formulate a rapid intervention for a patient in |

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| | | | | | | cardiac arrest. |
| | | | | | | Synthesize assessment findings to formulate the termination of resuscitative efforts for a patient in cardiac arrest. |
| | | | | | | Discuss the primary etiologies of cardiopulmonary arrest in infants and children. |
| | | | | | | Discuss basic cardiac life support (CPR) guidelines for infants and children. |
| | | | | | | Identify appropriate parameters for performing infant and child CPR. |
| | | | | | | Integrate advanced life support skills with basic cardiac life support for infants and children. |
| | | | | | | Discuss the indications, dosage, route of administration and special considerations for medication administration in infants and children. |
| | | | | | | Demonstrate satisfactory performance of psychomotor skills of basic and advanced life support techniques according to the current American Heart Association Standards and Guidelines |
| | | | | | | Demonstrate proper CPR for all age groups. |
| | | | | | | Demonstrate the use of a length-based resuscitation device for determining equipment sizes, drug doses and other pertinent information for a pediatric patient. |
| | | | | | | Demonstrate the appropriate approach for treating infants and children with respiratory distress, failure, and arrest. |
| | | | | | | Defend the importance of interacting with family members at the scene of a resuscitation. |

**Projects Required:**
As assigned.

**Textbook:**
Contact Bookstore for current textbook.

**Materials/Equipment Required:**
None.

**Attendance Policy:**
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

**Grading Policy:**
The grading policy will be outlined by the instructor in the course syllabus.

**Maximum class size:**
Based on classroom occupancy

**Course Timeframe:**
The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define

credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

**Refer to the following policies:**

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

**Disability Services Program:**
Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class and which requires accommodations, contact the Disability Services Coordinator.