

Implementation date
Fall 2009

PROGRAM CONCENTRATION:
CAREER PATHWAY:

Public Safety
Homeland Security and
Emergency Services
Emergency Services

COURSE TITLE:

Course Description: This course is designed to provide an overview of the working relationship between various emergency management services within a system of varied resources and functions. During the course of instruction, areas of interest to be explored consist of first aid, fire science, hazardous materials, and emergency prevention and preparedness. Students will be provided with collaborative opportunities in the design of a comprehensive exercise plan intended to enhance ability to respond to emergencies. This course will also provide students with the knowledge and skills necessary to develop and conduct simulated disaster exercises to test their emergency operations plan. Finally, this course will provide basic communication skills needed to convey information in emergency and non-emergency situations.

OVERVIEW OF THE PUBLIC SAFETY SYSTEM

Students will distinguish between the various agencies and functions of agencies within the federal, state, and local public safety systems. Students will be able to delineate between the departments and agencies with regard to the different responsibilities and roles of these agencies and the legal and constitutional mandates of these agencies.

PS-HSES-1. Students will describe the public safety system.

- a. Compare federal, state, and local homeland security departments.
- b. Analyze law enforcement and protective service agencies.
- c. Describe the relationship between the fire department, emergency medical service, and rescue organizations.
- d. Compare paid vs. volunteer agencies.

Academic Standards:

ELA12LSV1 The student participates in student-to-teacher, student-to-student, and group verbal interactions.

ELA10RC2 The student participates in discussions related to curricular learning in all subject areas.

SSWH20 The student will examine change and continuity in the world since the 1960s.

SSCG16 The student will demonstrate knowledge of the operation of the federal judiciary.

SSCG15 The student will explain the functions of the departments and agencies of the federal bureaucracy.

HISTORY OF EMERGENCY SERVICES

Students will explore the history and evolution of emergency services in the United States. Students will describe the social, political, and economic implications of disaster.

PS-HSES-2. Students will create a timeline of the history of emergency services.

- a. Discuss the history of emergency services.
- b. Analyze a case study of the New York City Fire Department - pre and post 9/11 attacks.
- c. Critique local, state, and federal response to Hurricane Katrina.
- d. Analyze the rise of domestic attacks.
- e. Examine the Tulsa Safe Room Project.

Academic Standards:

SSUSH25 The student will describe changes in national politics since 1968.

SSWH20 The student will examine change and continuity in the world since the 1960s.

SSEF4 The student will compare and contrast different economic systems and explain how they answer the three basic economic questions of what to produce, how to produce, and for whom to produce.

FIRST AID

Students will be instructed in proper procedures for responding to various medical emergencies and situations involving injury, illness, and exposures that may be encountered. Students will learn current techniques and applications of recent developments in medical protocols. Students will be instructed in safe response to these types of emergencies with emphasis on scene safety, identification of additional resources, and hazards inherent to emergency situations. Students will be familiar with infectious disease control and the use of body substance isolation (i.e. personal protective equipment).

PS-HSES-3. Students will demonstrate basic first aid skills.

- a. Describe airway maintenance.
- b. Demonstrate treatment for shock.
- c. Explain methods to maintain proper breathing in patients.
- d. Identify methods to ensure proper circulation (i.e. chest compression, control bleeding, adequate perfusion).
- e. Determine mechanism of injury for trauma patients.
- f. Demonstrate proper bandaging, splinting, and immobilization of patient injury.
- g. Appraise emergency medical scenarios for proper response (i.e., diabetic, cardiac, poisoning, allergic reactions, heat and cold stress emergencies, etc.).

Academic Standards:

SAP1 Students will analyze anatomical structures in relationship to their physiological

functions.

SAP2 Students will analyze the interdependence of the integumentary, skeletal, and muscular systems as these relate to the protection, support and movement of the human body.

SAP3 Students will assess the integration and coordination of body functions and their dependence on the endocrine and nervous systems to regulate physiological activities.

FIRE SCIENCE ORGANIZATION AND PROCEDURES

Students will explore the history, traditions, terminology, and organization of fire service in America. Students will describe the roles and impact of national and state fire service organizations. Students will also explore fire department organization and procedures.

PS-HSES-4. Students will demonstrate knowledge of the history, traditions, basic terminology, and organization of fire service.

- a. Trace challenges faced by early settlers, determining how they protected themselves, their homes, and their property from fire.
- b. Explore the evolution of building construction and its impact on how fires react.
- c. Describe basic equipment used to combat fires.
- d. Discuss the water supply to maintain a fire.
- e. Examine major fires in American history to determine how they changed the fabric of the American lifestyle.
- f. Discuss basic and introductory terminology.

Academic Standards:

SSWH20 The student will examine change and continuity in the world since the 1960s.

SSWH21 The student will analyze globalization in the contemporary world.

PS-HSES-5. Students will learn the role and benefits and/or drawbacks of national and state fire service organizations.

- a. Identify components of national fire service organizations.
- b. Assess the roles and effectiveness of national fire service organizations.
- c. Identify state fire service organizations.
- d. Examine the roles and effectiveness of state fire service organizations.

Academic Standards:

SSCG4 The student will demonstrate knowledge of the organization and powers of the national government.

SSCG5 The student will demonstrate knowledge of the federal system of government described in the United States Constitution.

PS-HSES-6. Students will demonstrate knowledge of fire department organization and procedures.

- a. Identify the organization of the fire department.
- b. Identify the size of the department, the scope of its operation, and standard operational procedures.
- c. Identify rules and regulations that apply to all positions within a fire department.
- d. Describe the chain of command of the organization.

Academic Standards:

ELA12LSV1 The student participates in student-to-teacher, student-to-student, and group verbal interactions.

ELA10RC2 The student participates in discussions related to curricular learning in all subject areas.

FIREFIGHTING

Students will be introduced to the basic concepts of fire chemistry and the growth of fires. Students will also develop and apply observational skills that may be critical to a fire investigation. Students will learn about techniques, equipment, and skills employed by firefighters in the performance of their jobs.

PS-HSES-7. Students will demonstrate knowledge of fire chemistry.

- a. Define fire, the fire triangle, and tetrahedron.
- b. Identify two chemical, mechanical, and electrical energy heat sources.
- c. Define incipient, flame spread, hot smoldering, flash over, steady state, and clear burning.
- d. Define the three methods of heat transfer.
- e. Define the three physical stages of matter in which fuels are commonly found.
- f. Define the hazard of finely divided fuels as they relate to the combustion process.
- g. Define flash point, fire point, and ignition temperature.
- h. Define concentrations of oxygen in air as it affects combustion.
- i. Identify three products of combustion commonly found in structural fires that create a life hazard.
- j. Define units of heat measurement.
- k. Define thermal balance and imbalance.

Academic Standards:

SC1 Students will analyze the nature of matter and its classifications.

SC2 Students will relate how the Law of Conservation of Matter is used to determine chemical composition in compounds and chemical reactions.

SC3 Students will use the modern atomic theory to explain the characteristics of atoms.

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SC5 Students will understand that the rate at which a chemical reaction occurs can be affected by changing concentration, temperature, or pressure and the addition of a catalyst.

SC6 Students will understand the effects motion of atoms and molecules in chemical and physical processes.

SPS7 Students will relate transformations and flow of energy within a system.

SPS9 Students will investigate the properties of waves.

MM4P1 Students will solve problems (using appropriate technology).

PS-HSES-8. Students will discuss rescue operations.

- a. Demonstrate proper procedures when working in a smoke-filled environment.
- b. Describe responses to being lost or disorientated in a hostile environment.
- c. Identify methods to adapt to confined spaces in rescues.
- d. Describe how to search a burning building.
- e. Apply search pattern methods to given scenarios.
- f. Describe rescue techniques used in hostile environments.
- g. Demonstrate carries and drags.

Academic Standards:

SPS8 Students will determine relationships among force, mass, and motion.

SPS9 Students will investigate the properties of waves.

MM4P1 Students will solve problems (using appropriate technology).

PS-HSES-9. Students will examine firefighter safety.

- a. Describe the dangers associated with firefighting.
- b. Explain the dangers of being exposed to pathogens.
- c. Identify methods to protect from the risks associated to pathogen exposure.
- d. Identify elements of personnel accountability systems.
- e. Describe safety precautions using fire apparatus.
- f. Categorize hazards experienced with public utilities.
- g. Appraise scenarios to determine safety issues.

Academic Standards:

SAP1 Students will analyze anatomical structures in relationship to their physiological functions.

SAP4 Students will analyze the physical, chemical, and biological properties of process systems as these relate to transportation, absorption and excretion, including the cardiovascular, respiratory, digestive, excretory and immune systems.

MM4P1 Students will solve problems (using appropriate technology).

MM4P4 Students will make connections among mathematical ideas and to other disciplines.

PS-HSES-10. Students will describe personal protective equipment used by firefighters.

- a. Describe clothing used by firefighters.
- b. Explain dangers of protective equipment (i.e. overheating, respiration, etc.).
- c. Describe care and cleaning of protective equipment.
- d. Describe self-contained breathing apparatus (SCBA).

Academic Standards:

SAP1 Students will analyze anatomical structures in relationship to their physiological functions.

SAP4 Students will analyze the physical, chemical, and biological properties of process systems as these relate to transportation, absorption and excretion, including the cardiovascular, respiratory, digestive, excretory and immune systems.

MM4P1 Students will solve problems (using appropriate technology).

PS-HSES-11. Students will demonstrate knowledge of fire hoses, nozzles, portable lighting, appliances, and ladders.

- a. Identify the sizes, types, amounts, and use of hoses carried on a pumper.
- b. Explain the use of nozzles, hose adapters, and hose appliances.
- c. Demonstrate the ability to connect a fire hose to a hydrant.
- d. Analyze the techniques for coupling fire hoses and extending a hose.
- e. Identify procedures for inspection and maintenance of fire hoses, couplings, and nozzles.
- f. Illustrate hydrant-to-pumper hose connections.
- g. Describe the uses of portable lighting.
- h. Identify ladder components and types.
- i. Assess the importance of ground ladder maintenance.
- j. Evaluate the necessity of following proper procedures in carrying, positioning, and raising ladders.
- k. Analyze the significance of safety in climbing ladders.

Academic Standards:

SPS8 Students will determine relationships among force, mass, and motion.

SPS9 Students will investigate the properties of waves.

MM4P1 Students will solve problems (using appropriate technology).

MM4P4 Students will make connections among mathematical ideas and to other disciplines.

MM4P5 Students will represent mathematics in multiple ways.

FIRE PREVENTION

Students will explore fire prevention and safety procedures.

PS-HSES-12. Students will be introduced to methods of preventing fires.

- a. Identify the leading causes of fire.
- b. Define the principles of ventilation.
- c. Explain the advantages and effects of ventilation.
- d. Identify the different types of sprinkler systems.
- e. Identify the main control valve on an automatic sprinkler system.
- f. Explain procedures for conducting fire inspections.
- g. Identify and evaluate school exit drill procedures.
- h. Develop a pre-fire planning diagram of a building.

Academic Standard:

MM4P1 Students will solve problems (using appropriate technology).

PS-HSES-13. Students will demonstrate knowledge of safety procedures involved in the prevention of fires.

- a. Identify dangerous building conditions created by fire.
- b. Demonstrate techniques for action when trapped or disoriented in a fire situation.
- c. Define procedures to be used in electrical emergencies.
- d. Identify safety procedures when using fire service lighting equipment.
- e. Develop an accident prevention program.
- f. Evaluate accident and injury reports and describe appropriate prevention measures.

Academic Standard:

MM4P1 Students will solve problems (using appropriate technology).

HAZMAT – HAZARDOUS MATERIALS OVERVIEW

Students will analyze the properties of various hazardous materials found in routine responses to emergencies. Students will become familiar with the chemical properties of various common use chemicals as well as special instances of weaponized chemicals, bacteria, viruses, and radiological isotopes and elements. Students will

explore the methods and equipment currently in use by emergency response agencies to protect the public and the individual responder.

PS-HSES-14. Students will examine hazardous materials from the perspective of a community threat response.

- a. Analyze chemical properties of common use products, i.e. chlorine, household products, and industrial products.
- b. Discuss weaponized agents to include warfare agents such as inhalation agents, blister agents, and nerve agents.
- c. Discuss weaponized biological agents to include anthrax, botulinum, smallpox, and other toxins.
- d. Compare radiological and nuclear isotopes and elements.
- e. Investigate detection and protective equipment.

Academic Standards:

SC2 Students will relate how the Law of Conservation of Matter is used to determine chemical composition in compounds and chemical reactions.

SC5 Students will understand that the rate at which a chemical reaction occurs can be affected by changing concentration, temperature, or pressure and the addition of a catalyst.

SC6 Students will understand the effects motion of atoms and molecules in chemical and physical processes.

SC7 Students will characterize the properties that describe solutions and the nature of acids and bases.

SPS3 Students will distinguish the characteristics and components of radioactivity.

EMERGENCY PREVENTION AND PREPAREDNESS

Students will study and explore programs to train the public in various methodologies to protect the family and individuals from various threats and hazards. Students will review numerous programs such as fire prevention, severe weather awareness and protection, neighborhood and community watch programs and public information sources. Students will compare informational sources for disaster supplies, shelter information and observational training for identification of criminal threats and other hazards.

PS-HSES-15. Students will recommend improvements to community prevention and preparedness plans.

- a. Analyze emergency plans for government and private sector.
- b. Explore fire prevention training.
- c. List contents of emergency and disaster supply kits.

Academic Standards:

ELA12C1 The student demonstrates understanding and control of the rules of the English language, realizing that usage involves the appropriate application of conventions and grammar in both written and spoken formats.

ELA10RC2 The student participates in discussions related to curricular learning in all subject areas.

ELA10RC3 The student acquires new vocabulary in each content area and uses it correctly.

DISASTER SIMULATION – RESPONDER ROLE

Students will learn the basic principals of an effective and safe response in a simulated response environment.

PS-HSES-16. Students will participate in a disaster simulation as a responder.

- a. Distinguish hazards in various types of incidents.
- b. Choose appropriate types of personal protection.
- c. Identify aspects of response scene safety.
- d. Compare types of response techniques and methodologies.

Academic Standards:

ELA12LSV1 The student participates in student-to-teacher, student-to-student, and group verbal interactions.

ELA10RC2 The student participates in discussions related to curricular learning in all subject areas.

Reading Across the Curriculum

Reading Standard Comment

After the elementary years, students engage in reading for learning. This process sweeps across all disciplinary domains, extending even to the area of personal learning. Students encounter a variety of informational as well as fictional texts, and they experience text in all genres and modes of discourse. In the study of various disciplines of learning (language arts, mathematics, science, social studies), students must learn through reading the communities of discourse of each of those disciplines. Each subject has its own specific vocabulary, and for students to excel in all subjects, they must learn the specific vocabulary of those subject areas in *context*.

Beginning with the middle grades years, students begin to self-select reading materials based on personal interests established through classroom learning. Students become

curious about science, mathematics, history, and literature as they form contexts for those subjects related to their personal and classroom experiences. As students explore academic areas through reading, they develop favorite subjects and become confident in their verbal discourse about those subjects.

Reading across curriculum content develops both academic and personal interests in students. As students read, they develop both content and contextual vocabulary. They also build good habits for reading, researching, and learning. The Reading Across the Curriculum standard focuses on the academic and personal skills students acquire as they read in all areas of learning.

CTAE-RC-1 Students will enhance reading in all curriculum areas by:

Reading in All Curriculum Areas

- Read a minimum of 25 grade-level appropriate books per year from a variety of subject disciplines and participate in discussions related to curricular learning in all areas.
- Read both informational and fictional texts in a variety of genres and modes of discourse.
- Read technical texts related to various subject areas.

Discussing Books

- Discuss messages and themes from books in all subject areas.
- Respond to a variety of texts in multiple modes of discourse.
- Relate messages and themes from one subject area to messages and themes in another area.
- Evaluate the merit of texts in every subject discipline.
- Examine author's purpose in writing.
- Recognize the features of disciplinary texts.

Building Vocabulary Knowledge

- Demonstrate an understanding of contextual vocabulary in various subjects.
- Use content vocabulary in writing and speaking.
- Explore understanding of new words found in subject area texts.

Establishing Context

- Explore life experiences related to subject area content.
- Discuss in both writing and speaking how certain words are subject area related.
- Determine strategies for finding content and contextual meaning for unknown words.

CTAE Foundation Skills

The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

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The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEc), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a rapidly changing economy.

CTAE-FS-1 Technical Skills: Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

CTAE-FS-2 Academic Foundations: Learners achieve state academic standards at or above grade level.

CTAE-FS-3 Communications: Learners use various communication skills in expressing and interpreting information.

CTAE-FS-4 Problem Solving and Critical Thinking: Learners define and solve problems, and use problem-solving and improvement methods and tools.

CTAE-FS-5 Information Technology Applications: Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

CTAE-FS-6 Systems: Learners understand a variety of organizational structures and functions.

CTAE-FS-7 Safety, Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

CTAE-FS-8 Leadership and Teamwork: Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

CTAE-FS-9 Ethics and Legal Responsibilities: Learners commit to work ethics, behavior, and legal responsibilities in the workplace.

CTAE-FS-10 Career Development: Learners plan and manage

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academic-career plans and employment relations.

CTAE-FS-11 Entrepreneurship: Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.