

*National Fire Academy*

# FESHE Model Curriculum

Associate's (Non-Core)

February 2008



**FEMA**



# ***Introduction to Fire and Emergency Services Administration***

**Course Description:** This course introduces the student to the organization and management of a fire department and the relationship of government agencies to the fire service. Emphasis on fire service leadership from the perspective of the company officer.

**Prerequisite:** *Principles of Emergency Services*

- Outcomes:**
1. Identify career development opportunities and strategies for success.
  2. Explain the need for effective communication skills both written and verbal.
  3. Articulate the concepts of span and control, effective delegation and division of labor.
  4. Recognize appropriate appraising and disciplinary actions and the impact on employee behavior.
  5. Examine the history and development of management and supervision.
  6. Evaluate methods of managing available resources.
  7. Identify roles and responsibilities of leaders in organizations.
  8. Compare and contrast the traits of effective versus ineffective supervision and management styles.
  9. Identify and assess safety needs for both emergency and non-emergency situations.
  10. Identify the importance of ethics as they apply to supervisors.
  11. Identify the role of a company officer in Incident Command System (ICS).
  12. Describe the benefits of documentation.
  13. Identify and analyze the major causes involved in line of duty firefighter deaths related to health, wellness, fitness and vehicle operations.

**Suggested Student Texts:**

*Company Officer*; Clinton Smoke, Thomson, 2005  
*Fire Service Personnel Management*; Stephen Edwards, Brady, 2nd Ed., 2005  
*Fire & Emergency Services*; Jones & Bartlett, 2006  
*The Chief Officer*; Brady, 2005

**Supporting References/ Research for Faculty and Students:**

**U.S. Fire Administration**

Publications:

<http://www.usfa.fema.gov/applications/publications>

See EMS, Fire Safety and Public Education, Fire Administration, Fire Service Operations, Health and Safety

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

**National Institute for Standards and Technology**

<http://www.fire.nist.gov>: Fire Tests/Data, Software/Models, Publications, FIREDOC (under Publications)

**References**

*Chief Fire Officer's Desk Reference*; This is for Fire Administration 1  
*Fire Chiefs Handbook*; Penwell

*Fire Service Administration*; Nancy Grant & David Hoover, NFPA, 1994

*Fire Service Administration*; Nancy Grant & David Hoover, NFPA, 1993

*Management in the Fire Service*; Carter & Rausch, NFPA, 2nd Ed., 1989

*NFPA 1500*

*NFPA 1021*

*NIMS* – This should be included in all or several management courses

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

**Current Events/News**

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

**Assessment:**

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

**Points of Contact:**

Larry Perez, Dona Ana Community College, New Mexico,  
(505) 527-7746, [laperez@nmsu.edu](mailto:laperez@nmsu.edu)

Judith Kuleta, Bellevue Community College, Washington  
(425) 564-2515, [jkuleta@bcc.ctc.edu](mailto:jkuleta@bcc.ctc.edu)

# **Course Outline**

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## ***Introduction to Fire and Emergency Services Administration***

- I. New challenges and opportunities
  - A. Duties
  - B. National Standards
  - C. Career Opportunities
  - D. Education and Training
  
- II. Communication Process
  - A. Verbal
  - B. Written
  - C. Active Listening Skills
  
- III. Management Principles
  - A. Span of Control
  - B. Delegation/Division of Labor
  - C. Unity of Command
  - D. Chain of Command
  - E. Organizational Structure
  
- IV. Tools for Employee Development
  - A. Evaluation and Appraisal of Employees
  - B. Rewards and Motivation
  - C. Progressive System of Discipline
  - D. Grievance Procedures
  
- V. Management and Supervision
  - A. Theories
  - B. History
  
- VI. Managing Resources for Emergency and Non-emergency
  - A. Equipment
  - B. Personnel
  - C. Time
  
- VII. Leadership
  - A. Managers
  - B. Leaders
  - C. Roles and Responsibilities

VIII. Supervision and Management

- A. Styles
- B. Traits
- C. Effectiveness

IX. Safety Assessment

- A. Non-Emergency
- B. Emergency

X. Ethics

- A. Harassment
- B. Conflict of Interest
- C. Public Trust
- D. Code of Ethics
- E. Diversity
- F. Morality

XI. Incident Management System

- A. Duties and Responsibilities
- B. Transfer of Command

XII. Records Management

- A. Formal Documentation
- B. Informal Documentation

# ***Fire Investigation I***

**Course Description:** This course is intended to provide the student with the fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause, preservation of evidence and documentation, scene security, motives of the firesetter, and types of fire causes.

**Prerequisite:** *Principles of Emergency Services, Building Construction for Fire Protection, Fire Behavior and Combustion or Instructor approval*

- Outcomes:**
14. Identify and explain the responsibilities of the fire department from a firefighter's perspective when responding to the scene of a fire, including the possibility of incendiary devices often encountered.
  15. Define criminal law and explain the constitutional amendments (4th, 5th, 6th, 8th, 14th) as they apply to fire investigations.
  16. Analyze the precedents set by constitutional law case studies that have affected fire investigations.
  17. Define and explain the common terms used in fire investigations.
  18. Describe the basic elements of fire dynamics and how they affect cause determination including fire behavior, characteristics of fuels and methods of heat transfer.
  19. Analyze the relationship of building construction on fire investigations including types of construction, construction and finish materials.
  20. Evaluate fire protection systems and building services and discuss how their installation affects the ignition of fires in buildings.
  21. Discuss the basic principles of electricity.
  22. Explain the role of the fire investigator in recognizing health and safety concerns including potential hazardous materials awareness.
  23. Describe fire scene investigations and the process of conducting investigations using the scientific method.
  24. Explain how an investigator determines the point of origin in a room.

25. Identify the types of fire causes and differentiate between accidental and incendiary causes.
26. Describe and explain the basic procedures used for investigating vehicle fires.
27. Identify the characteristics of arson and common motives of the firesetter.
28. Identify and analyze the causes involved in line of duty firefighter deaths related to structural and wildland firefighting, training and research and the reduction of emergency risks and accidents.

**Available Texts:** *Introduction to Fire Origin and Cause*, Fire Protection Publications, 2005  
*User's Manual for NFPA 921*; NFPA, 5<sup>th</sup> Ed., 2002

**Supporting  
References/  
Research for Faculty  
and Students:**

**U.S. Fire Administration**

Publications:

<http://www.usfa.fema.gov/applications/publications>

See Arson, Fire Data, Fire Protection, Fire Service Operations, Hazardous Materials, Health and Safety, Wildfire

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

**National Institute for Standards and Technology**

<http://www.fire.nist.gov>: Fire Tests/Data, Software/Models, Publications, FIREDOC (under Publications)

**References**

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

<http://www.firearson.com>

<http://www.interfire.org/>

*Fire Investigator*, Fire Protection Publications

*Forensic Fire Scene Reconstruction*, David Icove, Brady, 2003

*NFPA 1033 Standard for Professional Qualifications for Fire Investigations*

*NFPA 921, Guide for Fire and Explosion Investigations*

*Practical Fire and Arson Investigating*, David Redsicker, 2<sup>nd</sup> Ed.,  
1996

**Current Events/News**

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

**Assessment:**

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

**Points of Contact:**

Larry Perez, Dona Ana Community College, New Mexico,  
(505) 527-7746, [laperez@nmsu.edu](mailto:laperez@nmsu.edu)

Ralph De La Ossa, Long Beach Community College, Long Beach,  
CA, (562) 938-4338, [rdelaossa@lbcc.edu](mailto:rdelaossa@lbcc.edu)

# Course Outline

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## *Fire Investigation I*

- I. Emergency Responder Responsibilities and Observations
  - A. Responsibilities of the Fire Department
  - B. Responsibilities of the Firefighter
  - C. Responsibilities of the Fire Officer
  - D. Observations When Approaching the Scene
  - E. Observations Upon Arrival
  - F. Observations During Firefighting Operations
  - G. Identification of Incendiary Devices
  
- II. Constitutional Law
  - A. Criminal Law
  - B. Constitutional Amendments
  
- III. Case Studies
  - A. Michigan v. Tyler
  - B. Michigan v. Clifford
  - C. Daubert Decision
  - D. Benfield Decision
  - E. Kuhmo/Carmichael Decision
  
- IV. Fire Investigations Terminology
  - A. Terms as They Apply to Structural Fires
  - B. Terms as They Apply to Vehicle Fires
  - C. Other Common Investigative Terms
  
- V. Basic elements of Fire Dynamics
  - A. Ignition
  - B. Heat Transfer
  - C. Flame Spread
  - D. Burning Rate
  - E. Fire Plumes
  - F. Fire Analysis
  
- VI. Building Construction
  - A. Types of Construction
  - B. Building Materials
  - C. Building Components

- VII. Fire Protection Systems
  - A. Extinguishment Systems
  - B. Detection Systems
  - C. Signaling Systems
  - D. Other Building Services
  
- VIII. Basic Principles of Electricity
  - A. Basic Electricity
  - B. Wiring Systems
  - C. Common Electrical Systems
  
- IX. Health and Safety
  - A. Methods of Identification
  - B. Common Causes of Accidents
  - C. Common Causes of Injuries
  
- X. Fire Scene Investigations
  - A. Examining the Fire Scene
  - B. Securing the Fire Scene
  - C. Documenting the Fire Scene
  - D. Evidence Collection and Preservation
  - E. Exterior Examination
  
- XI. Determining Point of Origin
  - A. Interior Examination
  - B. Area of Origin
  - C. Fire Patterns
  - D. Other Indicators
  - E. Scene Reconstruction
  - F. Point of Origin
  
- XII. Types of Fire Causes
  - A. Accidental
  - B. Natural
  - C. Incendiary
  - D. Undetermined

XIII. Vehicle Fires

- A. Examination of Scene
- B. Examination of Exterior
- C. Examination of Driver and Passenger Areas
- D. Examination of Engine Compartment
- E. Examination of Fuel System
- F. Examination of Electrical System

XIV. Firesetters

- A. Characteristics of Arson
- B. Common Motives

# ***Fire Investigation II***

**Course Description:** This course is intended to provide the student with advance technical knowledge on rule of law, fire scene analysis, fire behavior, evidence collection and preservation, scene documentation, case preparation and testifying.

**Prerequisite:** *Fire Investigation I*

- Outcomes:**
1. Explain the rule of law as it pertains to arrest, search and seizure procedures and their application to fire investigations.
  2. Recognize and interpret fire scenes common to various types of fires.
  3. Describe the chemistry of combustion and the relationship of atoms, elements, compounds, and organic compounds on fire.
  4. Explain the nature and behavior of fire including the effects of heat.
  5. Explain and identify the combustion properties of liquids, gases and solid fuels.
  6. Identify and explain electrical causes of fires.
  7. List and explain the procedures for lifting fingerprints, evidence collection and preservation.
  8. List and identify the make-up and use of incendiary devices, explosives, and bombs.
  9. List the procedures for documenting fire scenes, including sketching, photography, and report writing.
  10. Analyze fire-related deaths and injuries and describe methods of documentation.
  11. Identify the techniques for interviewing and questioning suspects and subjects.
  12. Explain the role of the fire investigator in courtroom proceedings including courtroom demeanor and testifying.
  13. Identify and list the sources and technology available for fire investigations.

14. Identify and analyze the causes involved in the line of duty firefighter deaths related to structural and wildland firefighting, training and research and the reduction of emergency risks and accidents.

**Available Texts:**

*Kirk's Fire Investigation*; John Dehaan, Brady,  
*User's Manual for NFPA 921*, NFPA, 5<sup>th</sup> Ed., 2002

**Supporting  
References/Research  
for Faculty and  
Students:**

**U.S. Fire Administration**

Publications: <http://www.usfa.fema.gov/applications/publications>

See Arson, Fire Data, Fire Protection, Fire Service Operations,

Hazardous Materials, Health and Safety, Wildfire

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lcr.fema.gov>

**National Institute for Standards and Technology**

<http://www.fire.nist.gov>: Fire Tests/Data, Software/Models,  
Publications, FIREDOC (under Publications)

**References**

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

<http://www.interfire.org>

*Analysis and Interpretation of Fire Scene Evidence*; Jose Amirall,  
2004

*Fire and Arson Scene Evidence: A Guide for Public Safety*

*Personnel*; U.S. Department of Justice Office of Justice Programs

*Forensic Fire Scene Reconstruction*; David Icove, Brady, 2003

*Handbook of Forensic Services*, U.S. Department of Justice, Federal  
Bureau of Investigation

*NFPA 901 Standard Classifications for Incident Reporting and Fire  
Protection Data*, NFPA

*NFPA 921 Guide for Fire and Explosion Investigations*, NFPA

*Passenger Vehicle Identification Manual*, National Insurance Crime  
Bureau Inc.

**Current Events/News**

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

**Assessment:**

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

**Points of Contact:**

Larry Perez, Dona Ana Branch Community College, NM (505) 527-7746, [Laperez@nmsu.edu](mailto:Laperez@nmsu.edu)

Ralph De La Ossa, Long Beach Community College, California (562) 938-4338, [rdelaossa@lbcc.edu](mailto:rdelaossa@lbcc.edu)

# Course Outline

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## Fire Investigation II

- I. Rule of Law
  - A. Arrest Procedures
  - B. Search and Seizure
  - C. Warrant Searches
  
- II. Interpretations of Fire Scenes
  - A. Structure Fires
  - B. Vehicle Fires
  - C. Ship Fires
  - D. Explosions
  - E. Wildland Fires
  - F. Hazardous Materials Fires
  
- III. Chemistry of Combustion
  - A. Atoms
  - B. Elements
  - C. Compounds
  - D. Organic Compounds
  
- IV. Behavior of Fire
  - A. Heat
  - B. Flame Plumes
  - C. Sequence of a Room Fire
  - D. Effects of Environmental Conditions
  
- V. Combustion Properties
  - A. Liquids
  - B. Gases
  - C. Solids
  
- VI. Electrical Causes of Fires
  - A. Wiring Systems
  - B. Ignition Sources
  - C. Investigation of Fires

VII. Collection of Evidence

- A. Photography Procedures
- B. Sketching Procedures and Techniques
- C. Fingerprint Lifting and Collection Techniques
- D. Preservation of Evidence

VIII. Incendiary Systems

- A. Basic Incendiary Devices
- B. Explosives
- C. Bombs

IX. Documentation of Fire Scene

- A. Sketches
- B. Photographs
- C. Incident Reports
- D. Log Sheets
- E. Investigation Report
- F. Chain of Custody

X. Investigation of Fire-related Deaths and Injuries

- A. Homicide Fire Investigation
- B. Scene Security
- C. Scene Examination and Search
- D. Scene Documentation
- E. Autopsy Report

XI. Interview Techniques

- A. Interviewing
- B. Questioning
- C. Advising of Rights
- D. Exceptions to the Rule
- E. Waiver of Rights

XII. Courtroom Demeanor

- A. Court Procedures
- B. Pre-trial Preparation
- C. Trial Exhibits
- D. Physical Appearance
- E. Testifying
- F. Court Decisions

XIII. Court Decisions

- A. Daubert Decision
- B. Benfield Decision
- C. Kuhmo/Carmichael Decision

XIV. Sources of Information

- A. Local
- B. State
- C. Federal
- D. Website

# ***Hazardous Materials Chemistry***

**Course Description:** This course provides basic fire chemistry relating to the categories of hazardous materials including problems of recognition, reactivity, and health encountered by firefighters.

**Prerequisite:** None.

- Outcomes:**
1. Identify the common elements by their atomic symbols on the Periodic Table and demonstrate an understanding of why the table is organized into columns and groups.
  2. Differentiate between elements, compounds and mixtures, and give examples of each.
  3. Explain the difference between ionic and covalent bonding and be able to predict when each will occur.
  4. Identify, name, and understand the basic chemistry involved with common hydrocarbon derivatives.
  5. Comprehend the basic chemical and physical properties of gases, liquids and solids, and predict the behavior of a substance under adverse conditions.
  6. Identify, name, and understand the basic chemistry and hazards involved with the nine U.S. Department of Transportation hazard classes and their divisions.
  7. Analyze facility occupancy, transportation documents, shape and size of containers, and Material Safety Data Sheets (MSDS) to recognize the physical state and potential hazards of reactivity related to firefighter health and safety.
  8. Demonstrate the ability to utilize guidebooks to determine an initial course of action for emergency responders.
  9. Identify and analyze the causes involved in the line of duty firefighter deaths related to structural and wildland firefighting, training and research and the reduction of emergency risks and accidents.

**Available Texts:** *Chemistry of Hazardous Materials*; Eugene Meyer, Brady, 2005  
*Hazardous Materials Chemistry*; Armando Bevelacqua, Thomson, 2001

**Supporting  
References/Research  
for Faculty and  
Students:**

**U.S. Fire Administration**

Publications:

<http://www.usfa.fema.gov/applications/publications/>

See Fire Service Operations, Hazardous Materials, Terrorism

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

**National Institute for Standards and Technology**

<http://www.fire.nist.gov/> : Publications

<http://www.fire.nist.gov/aloft/>

**References**

*The Common Sense Approach to Hazardous Materials*; Frank L. Fire, Pennwell, 1987

North American Emergency Response Guidebook, U.S. Department of Transportation

Hazardous Chemicals Desk Reference; Richard J. Lewis, Sr., John Wiley and Sons, Inc.

Pocket Guide to Chemical Hazards, Center for Disease Control (CDC), National Institute of Occupational Health and Safety (NIOSH)

Fire Protection Guide to Hazardous Materials, National Fire Protection Association (NFPA)

Emergency Action Guides, Association of American Railroads and the U.S. Bureau of Explosives

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

**Current Events/News**

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

**Assessment:**

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

**Points of Contact:**

John F. Sullivan, Worcester Fire Department (508) 799-1827, [sullivanjf@ci.worcester.ma.us](mailto:sullivanjf@ci.worcester.ma.us)

# Course Outline

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## *Hazardous Materials Chemistry*

- I. Introduction
  - A. General Characteristics of Hazardous Materials
  - B. Hazardous Household Products
  - C. Hazardous Substances in the Workplace
  - D. Hazardous Materials in Transit
  - E. Hazardous Materials within Communities
  - F. NFPA System of Identifying Potential Hazards
  
- II. Matter and Energy
  - A. Matter and Energy Defined
  - B. Common Units of Measurement
  - C. Temperature, Pressure, and Volume Relationships
  - D. Heat Transmission
  - E. Understanding Fluid Principles
  
- III. Chemical Forms of Matter
  - A. Elements and Compounds
  - B. Periodic Classification of Elements
  - C. The Nature of Chemical Bonding
  - D. Writing Chemical Formulas
  - E. Naming Ionic and Covalent Compounds
  
- IV. Principles of Chemical Reactions
  - A. Types of Chemical Reactions
  - B. Factors Affecting the Rate of Reaction
  - C. Oxidation-Reduction Reactions
  - D. Fire Extinguishing Agents
  
- V. Chemistry of Some Common Elements
  - A. Oxygen
  - B. Hydrogen
  - C. Fluorine
  - D. Chlorine
  - E. Phosphorus
  - F. Sulfur
  - G. Carbon

- VI. Flammable Gases and Liquids
  - A. Flammability
  - B. General Hazards of Compressed Gases
  - C. Storage and Transport of Compressed Gases
  - D. General Hazards of Flammable Liquids
  - E. Storage and Transport of Flammable Liquids
  - F. Response to Flammable Gas and Liquid Emergencies
  
- VII. Chemistry of Some Hazardous Organic Compounds
  - A. The Nature of Organic Compounds
  - B. Aliphatic Hydrocarbons
  - C. Aromatic Hydrocarbons
  - D. Functional Groups
  - E. Halogenated Hydrocarbons
  - F. Alcohols
  - G. Ethers
  - H. Aldehydes and Ketones
  - I. Organic Acids
  - J. Esters
  - K. Amines
  - L. Peroxo-Organic Compounds
  
- VIII. Chemistry of Some Corrosive Materials
  - A. The Nature of Acids and Bases
  - B. The PH Scale
  - C. Acids and Bases as Corrosive Materials
  - D. Sulfuric Acid
  - E. Nitric Acid
  - F. Hydrochloric Acid
  - G. Perchloric Acid
  - H. Hydrofluoric Acid
  - I. Phosphoric Acid
  - J. Acetic Acid
  - K. Alkaline Metal Hydroxides
  - L. Response to Corrosive Material Emergencies
  
- IX. Chemistry of Some Water-Reactive Materials
  - A. The Nature of Water Reactive Materials
  - B. Alkali Metals
  - C. Combustible Metals
  - D. Metallic Hydrides
  - E. Metallic Phosphides
  - F. Metallic Carbides

- X. U.S. Department of Transportation Hazard Classes and Their Divisions
  - A. Identification of Hazardous Materials by Container Shape and Size
  - B. Identification of Hazardous Materials by Transportation Placards
  - C. Identification of Hazardous Materials by Shipping Documents
  - D. Identification of Hazardous Materials by Material Safety Data Sheets (MSDS)
  
- XI. Hazardous Materials in Fixed Facilities
  - A. Identification of Hazardous Materials by Location and Occupancy
  - B. Identification of Hazardous Materials by Container Shape and Size
  - C. Identification of Hazardous Materials by NFPA 704 System
  - D. Identification of Hazardous Materials by Material Safety Data Sheets (MSDS)
  
- XII. Response Guidelines
  - A. Utilization of North American Emergency Response Guidebook
  - B. Utilization of NIOSH Pocket Guide to Chemical Hazards
  - C. Utilization of NFPA Fire Protection Guide to Hazardous Materials
  - D. Utilization of Bureau of Explosives Emergency Action Guides

# ***Legal Aspects of the Fire Service***

**Course Description:** This course introduces the Federal, State, and local laws that regulate emergency services, national standards influencing emergency services, standard of care, tort, liability, and a review of relevant court cases.

**Prerequisite:** None.

- Outcomes:**
1. Define the different types of laws, explain their basic differences, and how the law functions in society.
  2. Become familiar with federal, state, and local laws, which regulate or influence emergency services.
  3. Explain the role and purpose of national codes and standards concerning their legal influence.
  4. Become familiar with legal decisions that has or will affect the fire service.
  5. Discuss the organization and legal structure of the fire department.
  6. Define the liabilities of firefighters.
  7. Recognize legal duties of emergency service members.
  8. Discuss negligence in an emergency setting.
  9. Define discrimination and identify areas of potential discrimination in the emergency service.
  10. Identify, explain and discuss the legalities of entrance requirements, residency, grooming, and drug testing.
  11. Discuss the scope of the civil rights act.
  12. Discuss the parameters and explain the basic intent of the American Disabilities Act, Fair Labor Standards Act, and Family Medical Leave Act.
  13. Explain the at-will doctrine.
  14. Explain the purpose of labor and employment laws.
  15. Identify and analyze the major causes involved in the line of duty firefighter deaths related to health, wellness, fitness and vehicle operations.

**Available Texts:** *Fire and Emergency Law Casebook*; Thomas D. Schneid, Thomson, 1996  
*Fire Law*; Thomas D. Schneid, Thomson, 1995  
*Legal Aspects of the Fire Service*; Lawrence Hogan, Amlex, 2000

**Supporting  
References/Research  
for Faculty and  
Students:**

**U.S. Fire Administration**

Publications:

<http://www.usfa.fema.gov/applications/publications>

See Arson, EMS, Fire Data, Fire Administration, Fire Service Operations, Health and Safety

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

**National Institute for Standards and Technology**

<http://www.fire.nsti.gov>; Fire Test/Data, Software/Models, Publications, FIREDOC (under Publications)

**References**

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

*Blacks Law Dictionary*; Bryan Garner, West Group  
*Legal Briefings for Fire Chiefs*, Quinlan Publishing  
*American Bar Association-Guide to Workplace Laws, Rights of Employees*

**Current Events/News**

<http://www.firechiefs.com>

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

**Assessment:** Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

**Points of Contact:** Travis Ford, Volunteer State Community College, C/O Nashville Fire Dept. (615) 862-5422, [travis.ford@nashville.gov](mailto:travis.ford@nashville.gov)

# **Course Outline**

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## ***Legal Aspects of the Emergency Services***

- I. The Legal System of the United States
  - A. Foundations
  - B. U.S. Constitution
  
- II. Civil vs. Criminal
  - A. Differences
  - B. Lawsuits
  - C. Punishments
  - D. Burden of Proof
  
- III. Tort Liability
  
- IV. Negligence
  
- V. Judicial System
  - A. The Court System
  - B. U.S. Supreme Court
  - C. Special Courts
  - D. Local Courts
  - E. Penalties
  
- VI. Federal Laws and the Fire Service
  - A. Fair Labor Standards Act
  - B. Americans with Disabilities Act
  - C. Age Discrimination
  - D. Civil Rights
  - E. Sexual Harassment
  
- VII. Employee Relations
  - A. Physical Testing - Entrance Requirements
  - B. Residency Requirements
  - C. Grooming Standards
  - D. Promotional Testing
  - E. Psychological Examinations
  - F. Polygraphs

VIII. Fire Prevention and Fire Codes

- A. Fourth Amendment
- B. Certifications
- C. Building Code vs. Fire Code
- D. Civil vs. Criminal

IX. Mutual Aid

X. Hazardous Materials

XI. Volunteers/Contracts

XII. Arson

# ***Occupational Safety and Health for the Fire Service***

**Course Description:** This course introduces the basic concepts of occupational health and safety as it relates to emergency service organizations. Topics include risk evaluation and control procedures for fire stations, training sites, emergency vehicles, and emergency situations involving fire, EMS, hazardous materials, and technical rescue. Upon completion of this course, students should be able to establish and manage a safety program in an emergency service organization.

**Prerequisite:** None.

- Outcomes:**
1. Describe the history of health and safety programs.
  2. Identify occupational health safety programs in industry today.
  3. Identify occupational health and safety programs for the emergency services.
  4. Describe the distinction between standards and regulations.
  5. Identify federal regulations that impact on health and safety programs.
  6. Identify the standards that impact on occupational health and safety.
  7. Identify the concepts of risk identification and risk evaluation.
  8. Describe the considerations for safety in fire stations and emergency response vehicles.
  9. Describe the components of an effective response safety plan.
  10. Describe the components of the pre-incident planning process.
  11. Describe the considerations for safety while training.
  12. Define the value of personal protective equipment.

13. Describe the components of accountability system in emergency operations.
14. Define incident priorities and how they relate to health and safety.
15. Describe the relationship of incident management as it related to health and safety.
16. Describe the methods of controlling hazards associated with responding to EMS, hazmat, and technical rescue incidents.
17. Explain the need for and the process used for post-incident analysis.
18. Describe the components and value of critical incident management programs.
19. Describe the responsibilities of individual responders, supervisors, safety officers, and incident commanders, safety program managers, safety committees and fire department managers as they relate to health and safety programs.
20. Describe the components of a wellness/fitness plan.
21. Identify and analyze the major causes involved in line of duty firefighter deaths related to health, wellness, fitness and vehicle operations.

**Available Text:**

*Occupational Safety and Health in the Emergency Service*; James S. Angle, Thomson, Oct. 2004

**Supporting  
References/Research  
for Faculty and  
Students:**

**U.S. Fire Administration**

Publications:

<http://www.usfa.fema.gov/applications/publications>

See EMS, Fire Service Administration, Fire Service Operations, Hazardous Materials, Health and Safety, Rescue, Terrorism, Wildfire

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

**National Institute for Standards and Technology**

<http://www.fire.nist.gov>: Publications

### **References**

*Emergency Incident Risk Management*; Jonathan Kipp and Murry Loflin Van Nostrand Reinhold, 1996

*Emergency Rehab*; Brady

*Fire Department Incident Safety Officer*; David W. Dodson, Delmar, 1999

*Fire Department Safety Officer*; David W. Dodson, Thomson, 1998

*Firefighters from the Heart*; Steve Chikerotis, Thomson Delmar, 2006

*Health and Safety Officer and Incident Safety Officer and Health and Safety Officer*; National Fire Academy

*The Fire and EMS Department Safety Officer*; Gordon Sachs, Prentice Hall, 2001

*NFPA Standards 1500, 1521, 1561 and 1581*

Lessons Learned Information Sharing:

<https://www.llis.dhs.gov/member/secure/index.cfm>

### **Current Events/News**

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

### **Assessment:**

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

### **Points of Contact:**

Travis Ford Volunteer State Community College, C/O Nashville Fire Department, (615) 862-5422

[travis.ford@nashville.gov](mailto:travis.ford@nashville.gov)

# Course Outline

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## ***Occupational Health and Safety***

- I. Introduction
  - A. History of Occupational Safety and Health in Industry
  - B. History of Occupational Safety and Health in Emergency Service Organizations
  - C. Identification of Safety Problems
  - D. Review of National Injury Statistics
  - E. National, State, and Private Organizations Involved with Occupational Safety and Health
  
- II. Safety-Related Regulations and Standards
  - A. Regulations vs. Standards
  - B. Federal Regulations Pertaining to Occupational Safety and Health
  - C. NFPA Standards Pertaining to Occupational Safety and Health
  
- III. Risk Management
  - A. Risk Evaluation
  - B. Risk Control
  
- IV. Safety Program Development and Management
  - A. Essential Elements
  - B. Setting Goals and Objectives
  - C. Cost Benefit Analysis
  - D. Training
  - E. Developing Standard Operating Procedures
  - F. Collecting Data
  - G. Publishing Health and Safety Information
  - H. Evaluating the Results
  
- V. Employee Fitness/Wellness Programs
  - A. Hazards Faced
  - B. Organizational Development
  - C. Employee Acceptance
  - D. Medical Examinations
  - E. Physical Fitness

- VI. Pre-incident Safety
  - A. Hazards Faced
  - B. Station Safety
  - C. Apparatus Safety
  - D. Response Safety
  - E. Pre-incident Planning
  
- VII. Safety at Fire Emergencies
  - A. Hazards Faced
  - B. Incident Priorities and Safety
  - C. Incident Management Systems
  - D. Accountability
  - E. Rapid Intervention
  - F. Rehabilitation
  
- VIII. Safety at EMS Emergencies
  - A. Hazards Faced
  - B. Infection Control
  - C. Personal Protective Equipment
  - D. Incident Management Systems
  - E. Scene Safety
  
- IX. Safety at Specialized Incidents
  - A. Hazards Faced
  - B. Safety at Hazards Materials Incidents
  - C. Safety at Technical Rescue Incidents
  - D. Safety at Terrorism Incidents
  - E. Safety at Natural Disasters
  
- X. Post-incident Safety Management
  - A. Incident Termination
  - B. Post-Incident Analysis
  - C. Critical Incident Stress Management
  
- XI. Personal roles
  - A. Individuals
  - B. Supervisors
  - C. Managers
  - D. Incident Commanders
  - E. Safety Officers
  - F. Safety Program Managers
  - G. Safety Committees

XII. Making It Happen

- A. Determining, Measuring, and Showcasing the Benefits
- B. Selling Management
- C. Selling Employees

IV. Negligence

V. Judicial System

- A. The Court System
- B. U.S. Supreme Court
- C. Special Courts
- D. Local Courts
- E. Penalties

# ***Principles of Fire and Emergency Services Safety and Survival***

**Course Description:** This course introduces the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavior change throughout the emergency services.

**Prerequisite:** None

- Outcomes**
1. Define and describe the need for cultural and behavioral change within the emergency services relating to safety, incorporating leadership, supervision, accountability and personal responsibility.
  2. Explain the need for enhancements of personal and organizational accountability for health and safety.
  3. Define how the concepts of risk management affect strategic and tactical decision-making.
  4. Describe and evaluate circumstances that might constitute an unsafe act.
  5. Explain the concept of empowering all emergency services personnel to stop unsafe acts.
  6. Validate the need for national training standards as they correlate to professional development inclusive of qualifications, certifications, and re-certifications.
  7. Defend the need for annual medical evaluations and the establishment of physical fitness criteria for emergency services personnel throughout their careers.
  8. Explain the vital role of local departments in national research and data collection systems.
  9. Illustrate how technological advancements can produce higher levels of emergency services safety and survival.
  10. Explain the importance of investigating all near-misses, injuries and fatalities.
  11. Discuss how incorporating the lessons learned from investigations can support cultural change throughout the emergency services.

12. Describe how obtaining grants can support safety and survival initiatives.
13. Formulate an awareness of how adopting standardized policies for responding to emergency scenes can minimize near-misses, injuries and deaths.
14. Explain how the increase in violent incidents impacts safety for emergency services personnel when responding to emergency scenes.
15. Recognize the need for counseling and psychological support for emergency services personnel, their families, as well as, identify access to local resources and services.
16. Describe the importance of public education as a critical component of life safety programs.
17. Discuss the importance of fire sprinklers and code enforcement.
18. Explain the importance of safety in the design of apparatus and equipment.

**Available Text:** 16 Firefighter Life Safety Initiatives ([www.everyonegoeshome.com](http://www.everyonegoeshome.com))

**Supporting References/Research for Faculty and Students:** Firefighter Life Safety Summit Initial Report and additional summit reports (Wildland firefighting, Health—Wellness—Fitness, Structural Firefighting, Emergency Vehicles and Roadway Safety, Culture Change) at [www.everyonegoeshome.com](http://www.everyonegoeshome.com).

**Assessment:** Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

**Points of Contact:** Travis Ford, Volunteer State Community College, Program Director/Assistant Professor of Fire Science Technology, (615)230-3354

# Course Outline

## ***Principles of Fire and Emergency Services Safety and Survival***

- I. Introduction
  - A. History of fire service culture
  - B. Organizational culture
  - C. Individual role in culture/behavior
  - D. History of line of duty deaths and injuries statistics
  - E. Defining the nature of the problem
  
- II. The national context, health and safety
  - A. NFPA, OSHA
  - B. Medical and fitness standards
  - C. Data Collection (NFIRS)
  - D. Research/ Investigation NIST, NIOSH
  
- III. Training, equipment, response
  - A. Training, certification, credentialing
  - B. Apparatus and equipment
  - C. Emergency response – response to emergency scenes
  - D. Violent incidents
  - E. Emerging technologies
  
- IV. Organizational health and safety profile
  - A. Personal and organizational accountability
  - B. Present condition/culture
  - C. Investigations - internal
  - D. Analyzing your profile
  - E. Utilizing grants to meet needs
  
- V. Risk Management
  - A. Risk management concepts and practices
  - B. Unsafe acts
  - C. Empowerment definition
  
- VI. Prevention
  - A. Home fire sprinklers
  - B. Code enforcement
  - C. Public education/ fire and life safety
  - D. Counseling and psychological support

# ***Strategy and Tactics***

**Course Description:** This course provides an in-depth analysis of the principles of fire control through utilization of personnel, equipment, and extinguishing agents on the fire ground.

**Prerequisite:** *Principles of Emergency Services*

- Outcomes:**
1. Demonstrate (verbally and written) knowledge of fire behavior and the chemistry of fire.
  2. Articulate the main components of pre-fire planning and identify steps during a pre-fire plan review.
  3. Recall the basics of building construction and how they interrelate to pre-fire planning.
  4. Recall major steps taken during size-up and identify the order in which they will take place at an incident.
  5. Recognize and articulate the importance of fire ground communications.
  6. Identify and define the main functions within the ICS system and how they interrelate during an incident.
  7. Given different scenarios, the student will set up an ICS, call for appropriate resources and bring the scenario to a mitigated or controlled conclusion.
  8. Identify and analyze the major causes involved in line of duty firefighter deaths related to health, wellness, fitness and vehicle operations.

**Available Texts:** *Building Construction Methods and Materials for the Fire Service;* Michael Smith, Pearson Education, 2008  
*Strategic and Tactical Considerations on the Fire Ground (and Instructor's Guide);* James Smith, Brady, 2002  
*Strategic and Tactical Considerations on the Fire Ground Study Guide;* James Smith, Trafford Press, 2002

**Supporting  
References/Research  
for Faculty and  
Students:**

**U.S. Fire Administration**

*Building Construction, Combustible & Non Combustible CDROM,*  
U. S. Fire Administration

Publications:

[http://www.usfa.fema.gov/applications/publications/pubs\\_main.cfm](http://www.usfa.fema.gov/applications/publications/pubs_main.cfm)

See Fire Protection, Fire Service Administration, Fire Service Operations, Hazardous Materials, Health and Safety, Rescue, Terrorism, Training, Wildfire

Applied Research:

<http://www.usfa.fema.gov>

Research Reports:

<http://www.usfa.fema.gov/research>

Technical Reports:

<http://www.usfa.fema.gov/applications/publications/browse.cfm?mc=29>

Topical Fire Research Series:

<http://www.usfa.fema.gov>

Learning Resource Center:

<http://www.lrc.fema.gov>

### **National Institute for Standards and Technology**

<http://www.fire.nist.gov>: Publications

<http://fire.nist.gov/bfrlpubs/fire02/PDF/f02012.pdf>

<http://fire.nist.gov/6510/6510c.pdf>

Lessons Learned Information Sharing:

<http://www.llis.dhs.gov/member/secure/index.cfm>

### **References**

*Command and Control of Fires and Emergencies (and Study Guide);*

Vincent Dunn, Pennwell, 1999

*Firefighting Strategy and Tactics;* James Angle, Thompson, 2000

*Fire Command: The Essentials of Local IMS;* NFPA, 2002

*Fire Officers Handbook of Tactics;* John Norman, Pennwell, 1998

*Incident Management for the Street-Smart Fire Officer;* John "Skip"

Coleman, Pennwell, 1997

*Incident Safety Officer;* David Dodson. 1999

*Managing Major Fires;* John "Skip" Coleman, Pennwell, 2001

*Protecting Life and Property from Wildfire;* James C. Smalley, NFPA, 2005

*Structural Firefighting;* Bernard Klaene, NFPA, 2002

### **Current Events/News**

<http://www.firehouse.com>

<http://www.fireengineering.com>

<http://www.withthecommand.com>

### **Assessment:**

Students will be evaluated for mastery of learning objectives by methods of evaluation to be determined by the instructor.

### **Points of Contact:**

Terry Koeper, Crafton Hills College, California  
(909) 389-3261, [tkoeper@craftonhills.edu](mailto:tkoeper@craftonhills.edu)

# Course Outline

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## ***Strategy and Tactics***

- I. Fire Chemistry Terms and Concepts
  - A. Heat Transfer
  - B. Principle Fire Characteristics of Materials
  - C. Fire Classifications
  
- II. Extinguishing Equipment
  - A. Extinguishing Equipment
  - B. Fire Apparatus
  - C. Personnel Requirement
  
- III. Visual Perception
  - A. Pre-planning
  - B. Size-up
  
- IV. Pre-Fire Planning
  - A. Concept
  - B. Phases
  - C. Methods
  - D. Format
  - E. Occupancy Classifications
  - F. Building Types
  
- V. Basic Divisions of Tactics
  - A. Size-up
    - 1. Facts
    - 2. Probabilities
    - 3. Own Situation
    - 4. Decision
    - 5. Plan of Operation
  
- VI. Rescue
  - A. Life Safety Problems of Fire
  - B. Determination of Life Hazard
  - C. Rescue Resources and Operations

VII. Exposures

- A. Principle Contributing Factors
- B. Exposure Protection Operations

VIII. Confinement

- A. Fire Separations
- B. Fire Loading
- C. Built-in Protection
- D. Operations

IX. Ventilation

- A. Relationship to Objectives
- B. Equipment
- C. Roof Types
- D. Methods

X. Salvage

- A. Relationship to Objectives
- B. Equipment
- C. Operations During Fire
- D. Operations After Fire